



***Shipwrecks of the “Carreira da Índia” (1595-1623) – Sources for
the Study in Portuguese Maritime History***

Torsten Arnold

Mestrado em História Marítima

Dissertação

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Für Sónia

“The Portuguese overseas expansion is one of the most interesting research areas for historians. [...]The consequences were, either regarding the mother country or the countries to where the Portuguese sailed, incalculable and one has to ask himself repeatedly how it was possible that the small country Portugal managed to accomplish this enormous achievement.”

(Hermann Kellenbenz, 1970)

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Abstract

The present thesis *Shipwrecks of the “Carreira da Índia” (1595-1623) – Sources for the Study in Portuguese Maritime History* deals with factors which caused losses of ships of the *Carreira da Índia* which linked the European metropolis Lisbon with its Goa based *Estado da Índia* between 1595 and 1623. Although Portuguese-Asiatic shipping was formally separated from the Habsburg Empire during the Union of the Two Iberian Crowns (1580-1640), the European policies of the Spanish Kings, especially towards the United Provinces and the Netherlands had its influence and effects on the Portuguese side.

Shipwrecks, either on the outward bound or homeward bound voyages had occurred for various reasons since the early days of the *Carreira da Índia* yet the emergence of the two private European Companies, the Dutch United East India Company (founded in 1602) and the British East India Company (founded in 1600) were a new momentum by which's characteristics of concurrence and struggle for supremacy of the European-Asiatic spice trade, losses of Portuguese ships were caused by planned and executed military operations as well.

Focusing on the geographical region of the Mozambique Channel in which the losses have taken place, the thesis combines a historiographical approach with records of underwater archaeology analyzing questions related to the political environment and planned military operations in which shipwrecks have occurred as well as causes of shipwrecks observing ship building and design modifications and effects related to economic patterns such as the monetary flows of the Portuguese outward bound shipping during the period of observation.

Key words:

Carreira da Índia, Monetary flows, Mozambique Channel, Nau, Shipwrecks

Resumo

A presente dissertação de Mestrado em História, História Marítima pela Faculdade de Letras da Universidade de Lisboa e da Escola Naval, intitula-se “Shipwrecks of the “Carreira da Índia” (1595-1623) – Sources for the Study in Portuguese Maritime History” procura encontrar e analisar os fatores que causaram perda de embarcações da Carreira da Índia entre 1595 e 1623. Apesar da administração do comércio e navegação luso-asiático estar formalmente separada do império Habsburgo durante a União das Duas Coroa Ibéricas (1580-1640), as políticas hispano-europeias e, particularmente, em relação às Províncias Unidas e aos Países Baixos, influenciaram a vertente Portuguesa.

Os naufrágios, seja na fase da viagem de ida ou de volta, ocorreram desde os primeiros dias da Carreira da Índia mas, o aparecimento das duas companhias privadas europeias, a Companhia Holandesa das Índias Orientais (fundada em 1602) e a Companhia Inglesa das Índias Orientais (fundada em 1600), pelas suas características de concorrência e luta pela supremacia do comércio de especiarias eurasiático, fez com que as perdas de embarcações portuguesas resultassem também de operações militares planeadas.

Centrada na área geográfica do Canal de Moçambique, onde os naufrágios ocorreram, a presente dissertação combina uma abordagem historiográfica nacional e internacional com dados obtidos por arqueologia subaquática, comparando e analisando questões relacionados com o ambiente político e as operações militares planeadas que os envolveram; debruça-se também sobre as causas de perda de embarcações, através da observação da construção naval e suas modificações e sobre os efeitos relacionados com padrões económicos, tais como fluxos monetários na fase da ida da Carreira da Índia no período em análise.

Construindo o discurso da dissertação (entre 1595 e 1623) pela cronologia dos acontecimentos históricos dos finais do século XVI e início do século XVII, a mesma começa com a primeira viagem de uma companhia privada holandesa com base nas informações recolhidas e fornecidas por Jan Hyugen van Linschoten sobre a navegação portuguesa no Índico, terminando em 1623, ano do massacre de Amboina, que teve

como consequência o fim da aliança militar europeia. A escolha da área geográfica, o Canal de Moçambique, a passagem entre terra firme do continente africano e a ilha de Madagáscar, na época em estudo chamada São Lourenço, prende-se com os seguintes motivos: desde o início da Carreira da Índia, a ilha de Moçambique era um dos mais importantes entrepostos da navegação portuguesa ao longo da rota do cabo no qual, durante o século XVI, foram construídos uma feitoria, um hospital e sistemas defensivos como a fortaleza de São Sebastião. Aqui, os navios podiam ser abastecidos com água e alimentos e invernar quando o regime de monção não permitia uma continuação da viagem de ida ou volta. Da mesma forma, ao longo do período de 1497 até 1650, cerca de 25 por cento dos naufrágios portugueses ocorreram no Canal de Moçambique.

Estruturado em cinco capítulos, o discurso começa com uma observação genérica do Estado da Índia até 1580 e o aparecimento das duas companhias privadas da Europa do norte, a holandesa e a inglesa, centrando-se em assuntos dos princípios da navegação e das embarcações utilizadas.

A segunda parte analisa a época dos finais do século XVI e dos inícios do século XVII através de ângulos históricos, historiográficos e políticos. Caracterizado pelos seguintes eventos históricos, o discurso é separado em três fases: de 1595 até 1609 pela primeira viagem holandesa em águas asiáticas, as primeiras operações militares planeadas em águas moçambicanas (1604, 1607 e 1608) até às Tréguas de Doze Anos entre Portugal e os Países Baixos. Durante esse período (1609-1621) não se registaram perdas devido ao chamado curso neerlandês mas a Carreira da Índia, a ligação por meio marítimo entre Lisboa, a metrópole do império português e Goa, a capital do Estado da Índia, sofreu perdas pela navegação e comércio de uma nova companhia privada da Europa do norte, a Companhia Inglesa. Planos e tentativas para fundir as duas companhias privadas em apenas uma falharam mas, uma colaboração formal entre as companhias, através da constituição das chamadas frotas de defesa, impediu o prolongamento das tréguas entre os Portugueses e Holandeses procuradas pelos últimos. Entre 1621 e 1623, a última fase em análise, foram retomadas as operações militares planeadas no Índico Ocidental causando a perda de três naus portuguesas no ano de 1622. Os desacordos entre ambas as companhias pela supremacia do comércio asiático, que resultaram no massacre holandês contra os ingleses estacionados na feitoria partilhada de Amboina em 1623, impediram a execução de um novo ataque das forças

combinadas em águas moçambicanas, contudo, parte da armada portuguesa de 1623, que invernava na Ilha de Moçambique, perdeu-se devido a uma tempestade em Janeiro de 1624.

O capítulo três “Underwater Archaeology” explica as formações geográficas subaquáticas do Canal de Moçambique focando-se em fatores hidrográficos e oceanográficos como baixos, correntes e bancos de areia, que condicionaram a navegação luso-asiática, apresentando seis vestígios arqueológicos subaquáticos, cinco da navegação portuguesa e um da navegação holandesa em águas moçambicanas, observados e parcialmente escavados pela Arqueonautas Worldwide, Arqueologia Subaquática S.A., uma companhia privada de arqueologia marítima.

Nos capítulos quatro e cinco, “Naus of the *Carreira da Índia* the first half of the 17th century” and “Monetary flows of the Portuguese outward bound armadas during the first quarter of the 17th century”, a análise composta pelos métodos de pesquisa historiográfica e dados arqueológicos recolhidos, trata assuntos e questões da construção dos meios do transporte marítimo português, as naus, apresentando uma comparação entre as teorias da construção naval portuguesa e a reconstrução baseada em dois vestígios arqueológicos, a *Nossa Senhora dos Mártires*, que se perdeu em 1606 perto de São Julião de Barra, Portugal, e a *Nossa Senhora da Consolação*, que se perdeu em 1608 perto da Ilha de Moçambique. Relativamente aos fluxos monetários das armadas de ida que transportavam não só o dinheiro e o cabedal destinados à compra de especiarias mas também o dinheiro destinado à administração do Estado da Índia, a dissertação não só mostra a quantidade de dinheiro enviado, como apresenta a dimensão do comércio luso-asiático com a dependência e procura de prata originada no Novo Mundo e transportado pelas armadas espanholas. O caso da perda de várias embarcações espanholas nas Caraíbas e a falta de moedas de prata, os reales, serve como exemplo para o processo de preparação da armada portuguesa da *Carreira da Índia* no ano seguinte. Incluído neste capítulo encontra-se uma estimativa da quantidade de cabedal da armada de 1622 que, até agora, nunca tinha sido apresentada por ausência de dados documentais explícitos.

Usando os factos conhecidos das investigações de historiadores nacionais e internacionais e, através de uma nova interpretação baseada em documentos contemporâneos à qual foi acrescentada a componente de arqueologia naval e marítima,

a presente dissertação apresenta uma nova perspectiva relacionada com as causas e efeitos de naufrágios da Carreira da Índia em águas moçambicanas entre 1595 e 1623.

Palavras chave:

Carreira da Índia, fluxos monetários, Canal de Moçambique, Nau, Naufrágios

List of Abbreviations

AHU	Arquivo Histórico Ultramarino, Lisbon, Portugal
BNL	Biblioteca Nacional de Portugal, Lisbon
CARTi	Cartographia impressa, printed cartography section
C.C.	Coleção de Cartografia, Cartographic Collection
Cf.	confirm
cx.	caixa, box
coord.	coordination, coordinator
CU	Conselho Ultramarino
D., doc.	document
Dir.	director, directed by
Ed., eds.	editor, editors
FG	Fundo Geral
Fol., fols.	folio, folios
IDM	Ilha de Moçambique, Mozambique Island
Introd.	introduction, introduction by
MOG	Mogincual
N ^o .	Number
NAC	Nacala
op. cit.	obra citada
p., pp.	Page, pages
s.d.	sem data
s.l.	sem local
s.n.	sem nome
sep.	separate, separated from
t.	tomo
v.	verso
vol., vols.	volume, volumes

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Introduction

The present thesis *Shipwrecks of the “Carreira da Índia” (1595-1623) – Sources for the Study in Portuguese Maritime History* aims to analyze the various factors which caused the losses of ships of the Portuguese-Asiatic trade during the historical time period of the Union of the Two Iberian Crowns (1580-1640) and the first quarter of the 17th century in Mozambican waters, in particular.

Structured into five main parts in which the first provides a generic overview of the development of the Portuguese *Estado da Índia* until the late 16th century, the emergence of the European private companies, the Dutch United East India Company (VOC, founded in 1602), the British East India Company (EIC, founded in 1602) and the principles of the European-Asiatic shipping by observing the shipping routes and ships used.

The second part analyses the era of the late 16th century and the first quarter of the 17th century from a more historical, political and historiographical point of view and is divided into three distinctive periods: 1595-1609, 1609-1621 and 1621-1623. This separation is based on the following historical events: the first voyage of a Dutch private company to Asia (1595), the Twelve Years Truce between the Portuguese and Dutch (1609-1621), the recurrence of naval combats in Asian waters (1621) of which the attack on the Portuguese outward bound fleet of 1622 symbolized the last planned, and combined, European military action in the Western Indian Ocean. Given the fact that the loss of ships of the Portuguese outward bound fleet of 1623 is directly related to the loss of the silver fleet in the Caribbean in the previous year, the analysis of the same was included in the present thesis.

The third chapter, “Underwater Archaeology”, explains the geographical underwater formations of the Mozambique Channel focusing on hydrographical and oceanographic factors such as currents, sandbanks and shoals which conditioned the Portuguese-Asiatic shipping. Included in the presentation are the remains of six, five Portuguese and one Dutch, shipwrecks which were surveyed and in some cases excavated by Arqueonautas Worldwide, Arqueologia Subaquática S.A., a private marine archaeology company.

Chapters four and five, “Naus of the *Carreira da Índia* the first half of the 17th century” and “Monetary flows of the Portuguese outward bound armadas during the first quarter of the 17th century”, a combined analysis of historiography and maritime as well as underwater archaeology deal with the construction of the means of Portuguese maritime transport and the nau in particular, as well as monetary flows of the outward bound fleets which, on one hand carried the annual money to buy spices and oriental goods and, on the other, the financial supplies for *Estado da Índia*.

Given the fact that the European struggle for supremacy in world trade was not only fought in European waters or in the regions where spices and oriental goods originated from, such as the Spice Islands, but also took place at strategic points along the cape route, the maritime trade route to India, the present study focuses on one specific area in particular: Mozambique Island, the Portuguese way-station and entrepôt situated at the northern end of the Mozambique Channel which separates the island of Madagascar (or São Lourenço as it was named in the historical time period) from the African continent. The emphasis on this geographical area of the Western Indian Ocean is also based on the factor that approximately 25% of all known and documented shipwrecks of the Portuguese *Carreira da Índia* have occurred when passing the channel.

Analyzing known facts and introducing recent investigations, the thesis aims to contribute to early modern European maritime history by focusing on the means of maritime transport and the merchandise transported on board.

State of the Art

Shipwrecks as sources for Maritime History are not an invention of present day's studies. In his book *History of Africa South of the Zambesi*, George McCall Theal refers to the importance of shipwrecks for Maritime History as "Knowledge derived from Shipwrecks"¹.

During the last decades, there has been a development towards a combined observation, in which Maritime or Underwater Archaeology is used to find answers for questions more related to Maritime History. Recent Portuguese and international studies in shipbuilding treaties such as *The Nau of the Livro Nautico: Reconstructing a Sixteenth-Century Indiaman from Texts* by Alexander Dean Hazlett (Texas A&M University, 2007), *The History and Development of Caravels* by George Robert Schwarz (Texas A&M University, 2008), *Os Navios do Mar Oceano – Teoria e empiria na arquitectura naval portuguesa dos séculos XVI e XVII* by Francisco Contente Domingues (Faculty of Letters, Lisbon University, 2004) or *O Livro da fábrica das Naos de Fernando Oliveira. Princípios e Procedimentos de Construção Naval* by Carlos Manuel Montalvão de Sousa (Faculty of Letters, Lisbon University, 2009) provide new observations and knowledge about technical aspects on shipbuilding treaties as well as questions like proportions, rigging or seaworthiness.

Recently published researches on questions like the impacts of the Dutch attacks on the Portuguese East India Route, the Dutch-Portuguese struggle and naval combats for economical and political supremacy in the East, *A Carreira da Índia e o Corso Neerlandês: 1595-1625* by André Murteira (Universidade Nova de Lisboa, 2006), *The Singapore and Melakka Straits: Violence, Security and Diplomacy in the 17th Century* (Singapore, 2010) and *Hugo Grotius, the Portuguese and Free Trade in the East Indies* (Singapore, 2011) by Peter Borschberg. Recent investigations in Dutch archives revealed new possible views on information obtained by the capture of several letters carried onboard of a Portuguese East Indiaman off Ilheus Queimados in 1606, shortly before the tentative siege off Mozambique island (1607-1608).

¹ See: George McCall Theal, *History of Africa South of the Zambesi: From the Settlement of the Portuguese at Sofala in September 1505 to the Conquest of the Cape Colony by the British in September 1795*, vol.I, London, George Allen & Unwin, 1916, pp. 303-330.

Research investigation of the wood structure of an early 17th century Portuguese East Indiaman wrecked off São Julião de Barra, Lisbon, Portugal, believed to be the *Nossa Senhora dos Mártires* which sunk on its homeward bound journey in 1606, enabled the first virtual reconstruction of a Portuguese nau based on archival research on technical manuscripts of shipbuilding as well as recovered and measured artefacts. Filipe Castro, director of the excavation campaigns of the *Nossa Senhora dos Mártires*, published his research in several scientific articles, books and as his PhD thesis at the Texas A&M University: *The Pepper Wreck, A Portuguese Indiaman at the mouth of the Tagus river* (Texas A&M University, College Station, 2001), *A Nau de Portugal – Os navios da conquista do Império do Oriente 1498-1650* (Lisbon, 2003) as well as *Rigging the Pepper Wreck. Part 1-Masts and Yards* (Malden, Oxford, 2007) and *Rigging the Pepper Wreck. Part 2-Sails* (Malden, Oxford, 2009), among others. In 2006, Filipe Castro (in collaboration with Katie Custer) organized the Symposium “Edge of Empire”, which communications especially dealt with the history of Iberian seafaring and shipbuilding.

Introducing new information from an investigation of an early 17th century Portuguese nau, which sunk off Mozambique Island in 1608 and believed to be the *Nossa Senhora da Consolação*, allows, for the first time, to observe and compare data on 17th century Portuguese shipbuilding, proportions and general reconstruction of the two first documented findings of the same type of ship. The discovery of Spanish reales in Mozambican waters, believed to belong to the *São José*, which sunk in consequence of the combined Anglo-Dutch attack of the 1622 outward bound fleet off Mogincual shoal in 1622, combined with the losses of three Spanish Galleons off Florida the same year and the historical documentation of money supply for the Portuguese *Estado da Índia* under the Union of the Two Iberian Crowns (1580-1640) not only enables a numismatic analysis of the monetary flow but also the global impact of silver coins from the New World sent to Europe and Asia during the first half of the 17th century.

Studies in Portuguese and International Maritime or Underwater Archaeology either deal separately with the remains of ships, such as the wood structure, or with artefacts. A combined analysis of the means of maritime transportation and the goods transported by these is rare. In his book *Looking for Leads: Shipwrecks of the past revealed by contemporary documents and archaeological record*, a research regarding the Baltic Sea published in 1997, Christian Ahlström presented “a series of case studies

that illustrate how maritime archaeology and history offer insights into our understanding of past political, economic and societal patterns”², a methodology of angles for research and investigation was applied for the elaboration of the present thesis on Portuguese-Asiatic shipping and shipwrecks of the *Carreira da Índia* in particular.

By using the methods of two different sciences, Underwater Archaeology and History, the present thesis aims to provide a wider view of historical events which occurred during the Union of the Two Iberian Crowns and an uprising European struggle for the East India trade. Therefore, the analysis and comparison of archival documentation with archaeological records of Portuguese ships during the first half of the 17th century will demonstrate how contemporary sources as well as archaeological records correspond to each other.

² See: Stefan H. Claesson, “Book Review: Looking for Leads: Shipwrecks of the Past Revealed by Contemporary Documents and the Archaeological Record by Christian Ahlstrom”, in *Northeast Historical Archaeology*, [s.l.], [s.n.], vol. 26.1, 1997, pp. 89-90.

I Historical background

I.1 The Portuguese *Estado da Índia*

1497-1580

Before the arrival of the Portuguese, and later, other European maritime or seaborne empires, maritime trade in Asia was undertaken by several local seafaring people such as the Arakanese, the Chinese, the Javanese or the Malaysians, organized in “a network of maritime trade routes linking the ports of departure and call, the termini and stapling points for the merchandise coming from the various production areas”³.

Soon after the first voyages to the East Indies initiated by the voyage of discovery of the maritime trade route to India by Vasco da Gama (1497-1499), Portugal had established its sphere of political influence in the Asiatic world by the foundation of the Portuguese Cochin based *Estado da Índia* in 1505⁴ and the conquest of Melakka by Afonso de Albuquerque in 1511, and expanded its commerce by creating a complex network “by occupying a number of strategic points which, once fortified, could easily be defended from the sea by armed men-of-war”⁵. Characterized as a “political sea power with an economic goal supported by a commercial organization”⁶ by alliances and privileges of local authorities “operating from one central point and from one central port of loading which linked both western and eastern Asia and therefore made centralized inter-Asian trade possible”⁷, the *Estado da Índia* became a model, which was copied and adopted by the Dutch East India Company almost a century later⁸.

The centralized maritime trade in Asia aimed at a monopolization of the spice trade and commerce with precious oriental goods, which profits obtained by the

³ See: M. A. P. Meilink-Roelofs, *Asian Trade and European Influence in the Indonesian Archipelago between 1500 and about 1630*, The Hague, Martinus Nijhoff, 1963, p. 118.

⁴ See: “Estado da Índia”, in Luís de Albuquerque (dir.), Francisco Contento Domingues (ed.), *Dicionário de História dos Descobrimentos Portugueses*, Lisbon, Círculo de Leitores, 1994, vol. I, p. 390.

⁵ See: M. A. P. Meilink-Roelofs, op. cit., p. 116.

⁶ See: Idem, p. 119.

⁷ See: Idem, *ibidem*.

⁸ See: Idem, p. 120.

Portuguese caused a European struggle for participation and even overtaking by military force.

I.2 Portuguese *Estado da Índia*, the British East India Company and the Dutch United East India Company during the first half of the 17th century

The first half of the seventeenth century is characterized by various historical events whose impacts changed the established world known until then. By the end of the previous century, the Habsburg Empire ruled over the Netherlands which entered into their struggle of independence against the Spanish crown in 1568⁹.

The unification of the two Iberian crowns, result of Cardinal Henry's death in 1580 and the acclamation of King Philip II of Spain as King Philip I of Portugal¹⁰ in the same year proved to be an important part of the political explanation why the Dutch had started to attack Portuguese overseas possessions in West and East Africa, Asia and Brazil by the end of the century. Furthermore, the Spanish king had introduced a law by which foreign trade or shipping in Iberian territorial waters, ports and overseas territories in Angola, Guinea, Príncipe and S. Tomé on the western African shores, Brazil and the Caribbean on the western Atlantic trade or any Iberian possessions in the Indian Ocean and Asian waters¹¹ was forbidden.

The embargo and the Anglo-Spanish peace treaty¹², aimed to weaken the Dutch economic position by excluding merchants from the Lisbon spice market, resulted in the

⁹ See: Charles Ralph Boxer, *The Portuguese Seaborne Empire*, Manchester, Carcanet, 1991, p. 107.

¹⁰ See: Idem, pp. 108, f.

¹¹ See: Julio Firmino Judice Biker (ed.), *Collecção de Tratados e concertos de pazes que o Estado da Índia Portuguesa fez com os Reis e Senhores com quem teve relações nas partes da Ásia e África Oriental desde o princípio da conquista até ao fim do século XVII*, Lisbon, Imprensa Nacional, 1884, t. IV., pp. 73, ff.

¹² See: Jonathan I. Israel, *Dutch Primacy in World Trade 1585-1740*, Oxford, Clarendon, 2010, p. 82.

foundation of several Holland and Zeeland based overseas companies which, at the turn of the century, took over the Portuguese shipping monopoly with Asiatic and Oriental goods bound for the European market¹³, but also created an atmosphere of inner Dutch rivalry, which was resolved by the creation of a joint stock company of the East Indian trade: The *Verenigde Oost-Indische Compagnie* (VOC) or the United East India Company in 1602¹⁴ which purposes were not only to enable a Dutch East India trade but also to attack and conquer Portuguese and Spanish overseas possessions in Asia¹⁵ such as Mozambique island, an important *entrepôt* and way-station on the eastern African shores, Amboina, Melakka, Ternate, Tidore and the Moluccas as well as Portuguese-Asiatic shipping.

During the course of the thesis, the history of the Portuguese-Dutch conflict, later also extended to the English during the first half of the seventeenth century, is divided into three distinctive periods, each one observed and analyzed in detail. The first, from 1595 to 1609 is characterized by the first overseas encounters of Portuguese ships of the *Carreira da Índia* and the Dutch East India companies, including the VOC, which, were more of an accidental nature than of planned attacks¹⁶. Starting with the Dutch expedition in the Western Indian Ocean in 1604 led by Admiral Steven van der Hagen, the Dutch strategy changed towards a more offensive operation against the Portuguese overseas possessions and shipping, as well as their allies,¹⁷ including the blockades of Goa, Lisbon and Melakka, the capture of the Portuguese ship *Santa Catarina* (1603), the losses of the Portuguese ships *Santiago* (1602), *Nossa Senhora do Loreto* (1606), *Nossa Senhora da Consolação* (1608), *Bom Jesus* (1608), the Dutch ship *Zierikzee* (1608) as well as the tentative conquest of Mozambique island in 1607 and 1608 and the conquest of the Spice islands, the Moluccas.

The following years, from 1609 to 1621, were a relatively peaceful momentum, due to the ratification of the Twelve Years Truce and during which the Spanish acknowledged the independence of the Netherlands provinces from the Habsburg Empire. The Portuguese *Estado da Índia* in its limited possibilities caused by the

¹³ See: Idem, p. 68.

¹⁴ See Idem, pp. 69, ff.

¹⁵ See: Idem: pp. 71, ff; Charles Ralph Boxer, op. cit., pp.. 109, ff.

¹⁶ See: André Murteira, *A Carreira da Índia e o Corso Neerlandês, 1595-1625*, Lisbon, Tribuna, 2012, pp. 62-94.

¹⁷ See: Idem, pp.. 97, f; Cf: N. Mac Leod, *De Oost-Indische Compagnie als Zeemogendheid in Azie*, Rijswijk, Blankwaardt & Schoonhoven, vol. I, 1927, pp. 20- 58, f, 65.

unification of the two Iberian crowns, managed to regain parts of its annual trade with the Far East. Also, the embargo of Dutch-Iberian shipping was lifted benefiting both sides.

On the other side, the VOC expanded its economic network and alliances in the Asiatic World such as the Johor-VOC alliance¹⁸ and the economic relationships with the Kingdom of Jambi in southern Sumatra, the establishment of the Dutch East India Company in Batavia (Jakarta) in 1621¹⁹, but also the construction of several fortifications on the Moluccas²⁰ and Pulicat, of which the later was only one of the friction points regarding the Dutch-Portuguese struggle of the Asian cotton and spice trade monopoly²¹ as well as the general European supremacy, including the struggles between the British East India Company (EIC), founded in 1600²², and the VOC. Although attempts had been made to reach an Anglo-Dutch agreement regarding the Asian spice trade in 1613 and 1615²³, a merger of the two companies was rejected by both parties. The Dutch scholar-politician Hugo Grotius (1583-1645) defended the right of free trade and that “the seas were opened to all”²⁴, published with the title *Mare Libertum* in 1609²⁵. The arguments presented by Grotius and defended against the Portuguese claims for the domination of the trade in the East Indies by the Dutch State-generals and the general-council of the VOC, the Herren XVII, was neglected towards the English²⁶. Nevertheless, a “Treaty of Defense” against the Spanish and Portuguese (1619-1623) was concluded but was also overshadowed by several conflicts in the Indonesian Archipelago region.

Growing English interests in the raw silk trade with the Persian Shah Abbas, who had extended his sphere of influence into the Persian Gulf region formed the basis for the Anglo-Persian merge of interests but also meant a new momentum challenging the Portuguese East India trade and Ormus at its outer borders at the entry towards the

¹⁸ See: Peter Borschberg, *The Johor-VOC alliance and the Twelve Years' Truce: Factualism, Intrigue and International Diplomacy C.1606-1613*, Singapore, [s.n.], 2009.

¹⁹ See: Peter Borschberg, *The Singapore and Melakka Straits; Violence, Security and Diplomacy in the 17th Century*, Singapore, NUS Press, 2010, p. 122.

²⁰ See: Jonathan I. Israel, op. cit., pp. 101-105.

²¹ See: Idem, *ibidem*.

²² See: John Keay, *The honorable company: a history of the English East India Company*, London, Harper Collins, 1993, p. 9.

²³ See: Jonathan I. Israel, op. cit., pp. 104, f.

²⁴ See: Idem: p. 104.

²⁵ See: Peter Borschberg, *Hugo Grotius, the Portuguese and Free Trade in the East Indies*, Singapore, NUS Press, 2011, with special regard to the principles of free trade: pp. 84-88.

²⁶ See: Jonathan I. Israel, op. cit., pp. 104, f.

Persian Gulf. European collaboration with local kings and authorities, the Portuguese supporting the interests of Ormus, the English the ones of the Persians, created a hostile environment and the conquest of Ormus by the Anglo-Persian forces in 1622.

Apart from the loss of the VOC ship *Witte Leeuw*, caused by a naval combat with ships of the *Carreira da Índia* in 1613, there has been no loss of ships on both sides as observed above²⁷ and regarding the Anglo-Portuguese encounters, only the 1613 *Nossa Senhora da Nazaré* and the 1616 *São Julião* incidents are reported.

As the treaty of Antwerp, the Twelve Years Truce, ended without a prolongation or signing of a new treaty, the Dutch-Portuguese conflict was relaunched by an intensified military strategy to confirm and extend the Dutch economic and political pre-eminency compared to the *Estado da Índia* in Asia²⁸. After a joined Anglo-Dutch attack on the 1622 armada led by the Vice-king D. Francisco da Gama, which resulted in the losses of the *S. José* off Mozambique and the subsequent losses of the *S. Carlos* and the *S. Teresa* at Mozambique island²⁹, the Dutch concentrated their forces on the Asian seas rather than on the Indian Ocean by capturing several Portuguese ships of the China-Goa route between 1630 and 1644, the struggle to capture Melakka between 1633 and 1641³⁰ as well as several blockades of Goa³¹ of which the final blockade of 1644 resulted in the provisionary peace treaty between the VOC and Portugal³² which had gained its independence from Spain in 1640. Also, the VOC launched several fleets towards the Philippines to attack the Spanish trans-oceanic galleons of the Manila-Acapulco route³³ as there has been a shortage of silver supply for the purchase of goods due to the increased costs of war efforts³⁴.

²⁷ See. André Murteira, op. cit., pp. 153-159.

²⁸ See: Peter Borschberg, op. cit., p. 165.

²⁹ See: Charles Ralph Boxer, *Dom Francisco da Gama, Conde de Vidigueira e a sua viagem à Índia no ano de 1622*, Lisboa, Anais Clube Militar Naval, vol. 5-6, Lisbon, Imprensa da Marinha, 1930.

³⁰ See: Peter Borschberg, op. cit., pp. 165, f, 183-188.

³¹ See: Idem, *ibidem*, pp. 166, 175.

³² See: Julio Firmino Judice Biker (ed.), *Collecção de Tratados e concertos de pazes que o Estado da Índia Portuguesa fez com os Reis e Senhores com quem teve relações nas partes da Asia e Africa Oriental desde o princípio da conquista até ao fim do século XVIII*, vol. II, Lisboa, Imprensa Nacional, 1882, 138, ff; José Ferreira Borges de Castro, *Collecção de Tratados, Convenções, Contratos e Actos Publicos celebrados entre a Coroa de Portugal e as mais Potencias desde 1640 até ao presente*, vol. I, Lisbon, Imprensa Nacional, 1856, pp. 24, ff.

³³ See: N. Mac Leod, op. cit., pp. 359, ff.

³⁴ See: Jonathan I. Israel, op. cit., p. 171.

The 1630 treaty of Madrid³⁵, extended to the sphere of the Portuguese *Estado da Índia* in 1635³⁶, ended the Anglo-Portuguese and Anglo-Spanish animosities and led to a de-escalation in times of rising conflicts between the Dutch and the Portuguese in Asian waters.

Generally speaking, the historic time period of the end of the 16th until the mid 17th century is regarded as the decline of the Portuguese *Estado da Índia* and commerce in Asia as, at the same time, the Dutch East India Company's operations as the *golden age*. The fact that the Dutch had lost part of its Mediterranean and Near East trade due to higher freight charges³⁷ opened new possibilities for their East India Company³⁸ as the reorganization of Dutch maritime trade after 1621, concentrated on the Asiatic and Trans-Atlantic trade routes.

As stated above, silver was the major means of purchasing oriental goods and spices and during the Union of the two Iberian crowns, was supplied by the Spanish armadas of the *New World*³⁹ but also minted in *reales*, the major currency in the Portuguese *Estado da Índia*⁴⁰. The Spanish *real-of-eight* or *piece-of-eight* (the Portuguese *pataca*) was a standard coin used in the East India trade, equivalent to eight Dutch *shilling*⁴¹. After the arrival of the Spanish armadas, the money was transferred to the Lisbon India house, the *Casa da Índia*, from where it was distributed onto the fleets departing towards the East.

³⁵ See: José Ferreira Borges de Castro, op. cit., pp. 103-115.

³⁶ See: Idem, pp. 102, f.

³⁷ See: Idem, p. 150.

³⁸ See: Idem, p. 171.

³⁹ See: Alejandro Mirabal, *Spanish coins in Mozambican Waters – The Numismatic Collection of the São José (1622)*, [s.l.], Arqueonautas Publications, 2013.

⁴⁰ See: T. W. Baxter, A. da Silva Rego (eds.), *Documentos sobre os Portugueses em Moçambique e na África Central: 1497-1840 – Documents on the Portuguese in Central Africa and Mozambique: 1497-1840*, Lisbon, Centro de História e Cartografia Antiga do Instituto de Investigação Científica Tropical, 1989, vol. IX, p. 180; Alejandro Mirabal, Idem, *ibidem*.

⁴¹ See: Kristof Glamann, *Dutch-Asiatic Trade: 1620-1740*, The Hague, Martinus Nijnhoff, 1981, p. 50.

I.3 Comparing the principles of Portuguese and Dutch-Asiatic shipping

The annual Portuguese armadas linking Asia and Europe are known by the expression *Carreira da Índia* or *Rota do Cabo*⁴². Outward bound fleets usually left the metropolis Lisbon during April and May, passing the islands of Madeira and Cape Verde towards the Cape of Good Hope, entering the Indian Ocean and passing the Mozambique Channel, the inner-route between the African main land and the island of Madagascar⁴³, towards Cochin and Goa. In these journeys ships usually stayed at Mozambique island to take refreshments, repairing purposes or to cure the sick at the local hospital⁴⁴. The fortified possession at the northern end of the channel later gained importance to secure the local Portuguese East African trade against the Dutch attacks in 1607 and 1608 as well as in 1622. Homeward bound armadas left India around December and until January of the following year, usually taking the outer course off Madagascar and taking refreshments at the Azores before arriving in Lisbon midsummer, an average round voyage of almost 1.5 years⁴⁵.

Dutch-Asiatic shipping differed from the Portuguese armadas. Dutch ships fitted out several chambers such as Amsterdam, Delft or Zeeland left Northern Europe several times a year without a fixed calendar⁴⁶, passing the Cape of Good Hope and the Indian Ocean on an *outer course* off Madagascar towards Batavia (Jakarta), the Dutch administrative headquarters in Asia which was founded in 1621⁴⁷, but usually returned per annum departing from Batavia between December and February of the following year⁴⁸.

⁴² For a general observation of the Portuguese-India navigation see: Francisco Contente Domingues, *A Carreira da Índia*, Lisbon, Clube do Coleccionador dos Correios, 1998; *Roteiros Portugueses Inéditos da Carreira da Índia do século XVI*, Lisbon, Agência Geral das Colónias, 1940.

⁴³ The island of Madagascar was known as S. Lourenço.; See Francisco Contente Domingues, *Idem*, p. 8.

⁴⁴ See: Charles Ralph Boxer, *Moçambique island and the carreira da Índia*, STVDIA-Revista Semetral, n^o 8, July 1961, Lisbon, 1961, pp. 99, ff.

⁴⁵ See: André Murteira, *op. cit.*, p. 26.

⁴⁶ See: R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), *Dutch-Asiatic Shipping in the 17th and 18th centuries*, The Hague, Martinus Nijnhof, 1979-1987, vol. II, pp. 56, f, 73, ff.

⁴⁷ See: R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), *op. cit.*, vol. III, pp. 26, ff.

⁴⁸ See: Peter Borschberg, *The Singapore and Melakka Straits; Violence, Security and Diplomacy in the 17th Century*, Singapore, NUS Press, 2010, p. 122; For a general observation of the Dutch-Asiatic navigation see: R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), *op. cit.*, vol. I, pp. 56-92.

The Dutch colony at the Cape of Good Hope was founded in 1652⁴⁹ and represented an important way-station for outward and homeward bound fleets.

The principles of European-Asiatic navigation from which the Portuguese had gained their experience during the 16th century were a vital factor for the fast rise of the Dutch East India Company. In fact, the experiences of Jan Hyugen van Linschoten (1562/3-1611) who had lived five years in Goa⁵⁰ and published as *Reysgheschrift van de navigation der Portugaloyzers* in 1595⁵¹ became a kind of pilot of sailing instructions for the first Dutch East India voyage of de Houtman in 1595⁵². The participation of foreign seafarers, soldiers or passengers on board of Portuguese ships, a common practice since the early days of the *Carreira da Índia*, was abolished by the decree of King Philip I of Portugal in 1594 and renewed under his successor, Philip II in 1606⁵³, a fact which can be linked to the espionage of Linschoten.

On the other hand, this prohibition implied a limitation of mariners and soldiers by their origins and nationalities which, in times of economical and political changes and warfare meant a shortage of human resources for the Portuguese. Compared with the principles of the VOC, which throughout its existence not only based its operations on Dutch mariners and soldiers but also, and most probably, merely on foreigners like Danish, Germans and other Northern and Central European regions, the restriction also played an important role.

⁴⁹ See: Charles Ralph Boxer, *The Portuguese Seaborne Empire*, op. cit., p. 111.

⁵⁰ See: H. Houwens Post, "João Huygen van Linschoten: Administrador da casa do Arcebispo de Goa e Espião da Holanda (1583-1587)", sep. Ocidente, vol. 58, pp. 123-130; R. Bruijn, F. S. Gaastra, I. Schöffers (eds.), Idem, p. 59.

⁵¹ See: R. Bruijn, F. S. Gaastra, I. Schöffers (eds.), Idem, *ibidem*.

⁵² See: Idem, *ibidem*; J. L. Mollema, „De erste Schifvaart der Hollanders Oost-Indie 1595-1597“, The Hague, Martinus Nijnhoff, 1938.

⁵³ See: Julio Firmino Judice Biker (ed.), Idem, *ibidem*.

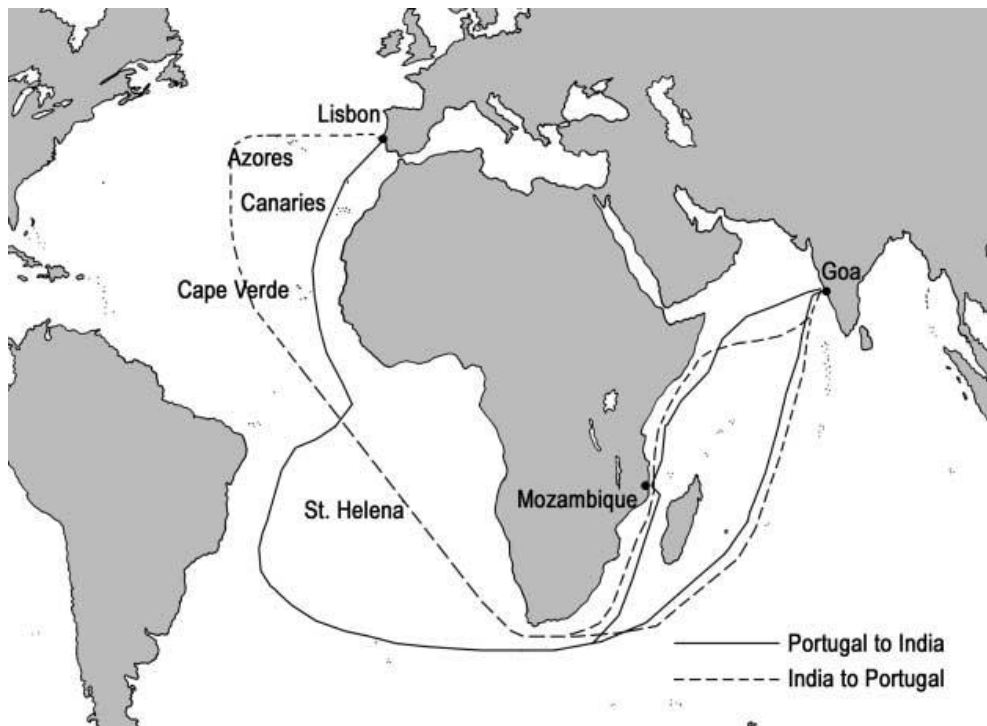


Figure 1: “The Portuguese India Route”⁵⁴

⁵⁴ See: Filipe Castro, Nuno Fonseca, “Sailing the Pepper Wreck”: a Proposed Methodology for Understanding an Early 17th-Century Portuguese Indiaman”, in *The International Journal of Nautical Archaeology*, ed. Blackwell Publishing Ltd, Malden, Oxford, 2006, vol. 35.1, p. 98.

I.4 Ships of the Portuguese *Carreira da Índia* and of the Dutch United East India Company

Since the beginning, East Indiamen formed the core of the fleets from the Portuguese *Carreira da Índia*⁵⁵, the Dutch⁵⁶ and the English East India Companies. Portuguese ships were mostly naus or carracks⁵⁷ whereas spiegelschepen or square stern ships⁵⁸ as well as Fluyts or Flyboats were Dutch, neither denoting “a special type of ship, but the particular use made of a certain type of ship”⁵⁹. During the course of the first half of the 17th century, both Portuguese and Dutch shipbuilding were subjected to changes in design, the experimental phase of three or four deck naus or the introduction of the Dutch Fluyt⁶⁰, which, compared to the spiegelschepen, differed by their extended length and shorter draught as well as lower costs of maintenance and a higher capacity of transporting cargo and less human resources needed for the navigation. During the course of the 17th century, the Fluyts became the preferred Dutch East Indiamen and ultimately replaced the spiegelschepen.

⁵⁵ See: “Nau”, in Luís de Albuquerque (dir.), Francisco Contente Domingues (coord.), *Dicionário de História dos Descobrimentos Portugueses*, Lisbon, Círculo de Leitores, 1994, vol. II, p. 792; Francisco Contente Domingues, *Os Navios do Mar Oceano – Teoria e impéria na arquitectura naval portuguesa dos séculos XVI e XVII*, Lisbon, Centro de História, 2004, pp. 243-252; Filipe Vieira de Castro, “Navios de vela”, in Francisco Contente Domingues (ed.), *História da Marinha Portuguesa. Navios, Marinheiros e Arte de Navegar 1500-1661*, Lisbon, Academia de Marinha, 2012, pp. 60-63.

⁵⁶ See: R. Bruijn, F. S. Gaastra, I. Schöffers (eds.), op. cit., vol. I, p. 38.

⁵⁷ See: Alex Hazlett, “The Nau of the *Livro Náutico*: The Textual Excavation of a Portuguese Indiaman”, in *Edge of Empire – Proceedings of the Symposium “Edge of Empire” held at the 2006 Annual Meeting of the Society for Historical Archaeology Sacramento CA* (Filipe Castro, Katie Custer (eds.), Casal de Cambra, Caleidoscópio, 2008.

⁵⁸ See: R. Bruijn, F. S. Gaastra, I. Schöffers (eds.), Idem, *ibidem*.

⁵⁹ See: Idem, *ibidem*; André Murteira, op. cit., pp. 30-35.

⁶⁰ See: “Fleute”, in Alfred Dudsus, Ernest Henriot, Friedrich Krumrey (eds.), *Das grosse Buch der Schiffstypen – Schiffe, Boote, Flöße unter Riemen und Segel, Historische Schiffs- und Bootsfunde, Berühmte Segelschiffe*, 3rd edition, Berlin, transpress VEB Verlag für Verkehrswesen, 1988, pp. 103-105.

Both naus and spiegelschepen were three masted ships of almost 40m in length and approximately 10 to 13m in beam⁶¹ which results in an average proportion of length to beam of 3/1. Also, a general comparison of the water displacement of a Portuguese nau of a capacity of 500t and an East Indiaman show similar characteristics: an average of 1000 to 1200t⁶². Also, East Indiaman, either the Portuguese or European were armed merchantmen, a vessel mainly used for commercial purposes equipped with artillery for defensive rather than offensive military intentment.

But the ships differed in several key aspects of their construction which ultimately affected their navigation and performance. The Portuguese nau, during the historical time period investigated in this thesis, are described as large vessels of three or four decks and a draught of up to 10m. Dutch spiegelschepen were, as the East Indiamen in general, a vessel of maximum two decks with a draught smaller than the Portuguese nau.

The nau had a castle on both parts, the prow and the stern, the spiegelschepen only at their stern, which, by its flat shape also called “spiegel” (mirror) differed from the nau. Also, the process of the hull construction differed due to the historical development of shipbuilding. While the Portuguese and Spanish followed the Mediterranean tradition of the *carvel-built* or *skeleton-first* method of carvel-planking, Dutch, and generally speaking Central and Northern European, shipbuilding was based on the *shell-first* method of an overlapping planking, also known as clinker-planking.

Both the Portuguese and Dutch used other types of ships for the European-Asiatic voyages as well, the galleons and jachten.

Generally speaking, Portuguese Galleons were four masted vessels, similar to the appearance of nau, but mainly used for military purposes⁶³ such as accompanying

⁶¹ See: Luís Filipe Monteiro Vieira de Castro, *The Pepper Wreck: A Portuguese Indiaman at the mouth of the Tagus river*, PhD Thesis, Texas A&M University, College Station, 2001, p. 193; “Ostindienfahrer”, in Alfred Dudsus, Ernest Henriot, Friedrich Krumrey (eds.), *Das grosse Buch der Schiffstypen – Schiffe, Boote, Flöße unter Riemen und Segel, Historische Schiffs- und Bootsfunde, Berühmte Segelschiffe*, 3rd edition, Berlin, transpress VEB Verlag für Verkehrswesen, 1988, p. 195.

⁶² See: Luís Filipe Monteiro Vieira de Castro, op. cit., p. 187; “Ostindienfahrer”, Idem, *ibidem*.

⁶³ See: “Galeão”, in Luís de Albuquerque (dir.), Francisco Contento Domingues (coord.), *Dicionário de História dos Descobrimentos Portugueses*, Lisbon, Círculo de Leitores, 1994, vol. I, pp. 442, f.; André

the convoys of naus to India or in the Asian waters itself. Differing by its construction characteristics, the Galleon had a shorter draught than the three or four deck naus⁶⁴ and also differed from them by the amount of its armament.

Dutch jachten (plural of jacht) were small vessels used for transmitting dispatches, reconnaissance or accompanying the merchant ships, the retourschepen or fluyts⁶⁵.

Still, at the beginning of the 17th century there has been no distinctive separation and classification between types of ships based on their use as a merchant ship or warship and Indiamen, either Dutch, English or Portuguese, were bifunctional sailing ships which, as single operating vessel or composed in fleets, were the means of communication and execution of economic, military or political strategies of a company or empire linking its metropolis and branch headquarters, factories, strategic costal defense positions and trade posts by using maritime routes.

Murteira, op. cit., pp. 34, f; Francisco Contente Domingues, *Os Navios do Mar Oceano – Teoria e impiria na arquitectura naval portuguesa dos séculos XVI e XVII*, op. cit., pp. 252-258; Filipe Vieira de Castro, op. cit., pp. 63-67.

⁶⁴ See: Vasconcellos, 1897...

⁶⁵ See: "Jaghd", in Alfred Dudsus, Ernest Henriot, Friedrich Krumrey (eds.), *Das grosse Buch der Schiffstypen – Schiffe, Boote, Flöße unter Riemen und Segel, Historische Schiffs- und Bootsfunde, Berühmte Segelschiffe*, 3rd edition, Berlin, transpress VEB Verlag für Verkehrswesen, 1988, p. 141, f; for technical details regarding the construction of the Jachten: Werner Jaeger, *Die Niederländische Jacht im 17. Jahrhundert – Eine historisch-technische Dokumentation*, Bielefeld, Verlag für Regionalgeschichte, 2001..

II Shipwrecks of the *Carreira da Índia*

1595-1623

By the end of the 16th and beginning of the 17th century, Portuguese and Spanish colonial possessions were scattered around the globe. As Charles Ralph Boxer had pointed out, the Dutch offensive military operations were mainly directed against the Portuguese overseas empire than against the Spanish⁶⁶. Either observed as struggle for free trade or supremacy for the East Indies trade, or as defense of an empire established by the voyages of Discoveries and ratified by the pope, the treaty of Tordesillas, the investigation of the thesis *Shipwrecks of the “Carreira da Índia” (1595-1623) – Sources for the Study in Portuguese Maritime History* will rather be conducted and concentrated on the Indian Ocean and the Mozambique channel in particular.

Although the Dutch and combined Anglo-Dutch attacks on Portuguese navigation on the Cape route during the first half of the seventeenth century had its impact disturbing the regular annual shipment between Asia and Europe, the same had already been affected by losses due to piracy and attacks in the Atlantic during the 16th century⁶⁷ but also due to navigation, weather or other causes⁶⁸. Nevertheless, each loss or even a delay due to a late entering of the Indian Ocean and a mandatory wintering at Mozambique Island consequently meant problems for a fragile overseas possession, the *Estado da Índia*. As the Portuguese financial system was based on the profits of the overseas trade exportations into Europe such as goods from the Atlantic (West Africa and Brazil) as well as the spices and oriental goods carried onboard of the East Indiamen, the *Estado da Índia* depended on the annual supply of the Asiatic trade remittance from the metropolis which was directly re-invested in the outfitting of the next years' fleet⁶⁹ and in purchasing new pepper. The Union of the Iberian crowns and the uprising of the European concurrence of the Asiatic trade at the beginning of the 17th

⁶⁶ Cf. Charles Ralph Boxer, “The Portuguese Seaborne Empire 1415-1825”, op. cit., p. 106.

⁶⁷ See: André Murteira, op. cit., pp. 46-49.

⁶⁸ See: Eduardo Frutuoso, Paulo Guinote, António Lopes, *Naufrágios e Outras Perdas da “Carreira da Índia”: Séculos XVI e XVII*, Lisbon, Grupo de Trabalho do Ministério da Educação para as Comemorações dos Descobrimentos Portugueses, 1998.

⁶⁹ See: Jorge M. Pedreira, “Custos e Tendências no Império Português, 1415-1825”, in Francisco Bethencourt, Diogo Ramado Curto (dir.), *A Expansão Marítima Portuguesa, 1400-1825*, Lisbon, Edições 70, 2010, p. 63.

century had several impacts on the Portuguese Empire such as the subvention of the Spanish war in Flanders⁷⁰, the construction, repair and reinforcement of coastal fortifications in West and East Africa as well as in Asia, an expense which had shifted from being an extraordinary cost into a constant one.⁷¹ The impact of the blockades of Lisbon harbor in 1606, hindering the departure of the annual Portuguese East India fleet⁷², the loss of the *Nossa Senhora dos Mártires* at *São Julião de Barra* near the river mouth of the Tagus river near Lisbon in 1606⁷³, the loss of the oriental goods, and the losses of the *São Francisco* in 1607 and *Nossa Senhora da Consolação* in 1608 caused by the tentative Dutch sieges off Mozambique Island, both carrying the remittance of a total of 40,000 cruzados to purchase pepper and other oriental goods⁷⁴ are examples of the impact on the Portuguese.

Although the period of the Twelve Years Truce suggested a stabilization regarding the military operations, the internal Portuguese administrative problems, namely the borrowing of the king's pepper money and corruption in the *Estado da Índia*, but also the low prices of spices and oriental goods at the European market due to the importations by the Dutch and English⁷⁵ are seen as causes for the modest or non existing recovery of the Portuguese East India trade⁷⁶.

The end of the Twelve Years Truce in 1621 and the renewal of the Dutch-Portuguese struggle collide with the war efforts in the Persian Gulf in 1622 and the fall of the important Portuguese trade post in Ormus by a combined Anglo-Persian force⁷⁷.

A year later, a joint Anglo-Dutch fleet attacked the Portuguese East India fleet off Mozambique which resulted not only in the hindering of the supplies needed in Persia but also in the losses of three ships, The *São Carlos*, the *São José* and the *Santa Teresa*.

Resuming the losses of Portuguese ships of the *Carreira da Índia* during the first half of the seventeenth century, either caused by enemies' attacks or other

⁷⁰ See: Idem, p. 64.

⁷¹ See: Idem, pp. 63, f

⁷² See: André Murteira, op. cit., p. 110; James C. Boyajian, "Portuguese Trade in Asia under the Habsburgs, 1580-1640", Baltimore, London, The Johns Hopkins University Press, 1993, p. 93.

⁷³ See: André Murteira, Idem, *ibidem*.

⁷⁴ See: James C. Boyajian, Idem, *ibidem*.

⁷⁵ See: Idem, p. 100, f.

⁷⁶ See: Idem, pp. 97, ff.

⁷⁷ See: Francisco Bethencourt, Diogo Ramçpada Curto (dir.), op. cit., p. 65.

circumstances, the impacts, on a long term view, seem to be quite small. As a matter of fact, the *Carreira da Índia* continued its annual shipment from and towards India but the annual shipment was slowed down or sometimes blocked by the efforts of the European enemies. Some losses, especially the *Nossa Senhora dos Mártires*, *São Francisco* and the *Nossa Senhora da Consolação* (1606-1608), the *S. Carlos*, *S. José* and *Santa Teresa* (1622) and the *S. Bráz*, *S. Simão* and *Santa Isabel* (1623) occurred at weak points of the Portuguese *Estado da Índia*.

II.1 From naval conflicts to the Twelve Years Truce

1600-1609

During the first decade of the 17th century, the relationships between the Dutch and Portuguese were characterized by the struggle for supremacy in European-Asiatic trade, either seen as the defense of the exclusive right by the treaty of Tordesillas in 1494⁷⁸ by the Portuguese, or as the necessity to open and guarantee access to free navigation and trade, ports and merchandize by military force, from the Dutch point of view.

Not only the neglected access to trade with oriental goods and spices by the royal decrees and embargos of 1594 and 1598⁷⁹ but also the possibility to obtain silver coins, (the Spanish *reales* and the 1 *reales de peso de a ocho*, a single coin of an average of 26g of silver, in particular, was considered a stable currency at the Iberian markets), were factors indicating economic reasons for the shifting of Dutch-Asiatic policies.

⁷⁸ See: “Tordesilhas, Tratado de” in Luís de Albuquerque (dir.), Francisco Contento Domingues (coord.), op. cit., vol. II, pp. 1039-1043.

⁷⁹ See: Jonathan I. Israel, op. cit., pp. 56,130, f.

The instructions of the Dutch fleet which left Northern Europe under the command of Steven van der Hagen in December 1603 clearly stated the attack of Portuguese or Castilian possessions or shipping as well as of their allies⁸⁰. However, the decision of an offensive strategy was based on several factors: after the established commercial and political relationships with several Asian kingdoms, such as Johore, the Portuguese had been attacking Dutch-Asiatic ships and trade in the vicinities of the Spice Islands such as Amboina, Bantam or Java⁸¹. Also, the captures of the Portuguese ship *Santa Catarina*⁸², a Nnu, which laden with merchandize from China en route to Goa was seized in the Singapore Straits in 1603 and caused a diplomatic incident⁸³ should rather be seen as minor incidents than the bigger operations which unfolded shortly after. Two years later, the Dutch managed to capture the *Santo António* off Patani and actually kept the ship for their trade purposes⁸⁴, modified its physical appearance⁸⁵ and tried to include her in the homeward bound fleet of 1606⁸⁶.

The first blockade and attempt of conquering Mozambique Island was undertaken by the fleet under the command of Steven van der Hagen in June-August 1604⁸⁷. Due to a late departure of the Portuguese outward bound East India fleet in 1604 under the command of D. Martim Afonso de Castro⁸⁸, the attempted conquest of Portuguese ships off Mozambique only resulted in the capture of the annual ship of the Goa-Mozambique trade, the *Nau de trato*⁸⁹. The departure of van der Hagen's fleet of

⁸⁰ Cf. André Murteira, Op. cit., pp. 97, f.

⁸¹ Cf. Idem, p. 98.

⁸² About the capture of the Santa Catarina: Peter Borschberg, "The Seizure of the *Sta. Catarina* Revisited: The portuguese Empire in Asia, VOC Politics and the origins of the Dutch-Johor Alliance (1602-c.1616), in *Journal of Southeast Asian Studies*, vol. 33 (1), Cambridge, Cambridge University Press, 2002, pp. 31-62; Idem, *The Singapore and Melakka Straits; Violence, Security and Diplomacy in the 17th Century*, op. cit., p. 68, ff.

⁸³ For further information about the diplomacy: Peter Borschberg, *Hugo Grotius, the Portuguese and Free Trade in the East Indies*, op. cit., pp. 194-207.

⁸⁴ See: Peter Borschberg, *The Singapore and Melakka Straits; Violence, Security and Diplomacy in the 17th Century*, op. cit., pp. 100-107.

⁸⁵ See: Idem, p. 100, p. 285, f.

⁸⁶ See: Peter Borschberg, "The Seizure of the Santo António at Patani: VOC Freebooting, the Estado da Índia and Peninsular Politics, 1602-1609", in *Journal of the Siam Society*, Vol. 90.1 & 2, Bangkok, The Siam Society, 2002, pp. 59-72; Idem, *The Singapore and Melakka Straits; Violence, Security and Diplomacy in the 17th Century*, op. cit., p. 102; Alfredo Botelho de Sousa, "Subsídios para a História Militar Marítima da Índia (1585-1669)", Lisbon, Imprensa da Armada, 1930, vol. I, p.620, f..

⁸⁷ See: André Murteira, op. cit., pp. 97-102; N. Mac Leod, op. cit., pp. 16-20; Alfredo Botelho de Sousa, op. cit., p. 287, f.; O. J. O. Ferreira, *Ilha de Moçambique Byna Hollands*, Jeffreysbaai & Gordonsbaai, Adamastor, 2007, pp. 33-36; R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), op. cit., vol. II, pp.16-19.

⁸⁸ See: André Murteira, op. cit., p. 107; J. H. da Cunha Rivara (ed.), *Arquivo Portuguez Oriental*, New Delhi, Asian Educational Services, 1992, fasciculo I, parte II, p. 131; João C. Reis, João Miguel O. Reis, José João O. Reis, *Memórias das Armadas da Índia: 1497-1650*, Macau, Mar-Oceano, 1990, p. 263.

⁸⁹ See:, Idem, pp. 100-107.

twelve ships⁹⁰ from Mozambique towards Goa in mid August permitted that the delayed Portuguese fleet did not suffer an earlier attack as in 1607 in the said region, but one ship, the nau *São Filipe* under the command of António de Mendonça was lost at Angoxa⁹¹, a distance of 30 léguas off Mozambique Island⁹², of which the Portuguese managed to save all hands, the *cabedal*, the Kings money, the artillery and some other cargo⁹³. The Portuguese had managed to defend Mozambique Island, their important way-station for the *Carreira da Índia* shipping but had to become aware of the possibility of another attempt.

During the next years Dutch military campaigns under the command of Willem de Zoete van Haultain, planned in 1605 and executed in 1606, aimed at a blockade and crusade of Iberian, mainly Portuguese, shipping in European waters⁹⁴, which, caused by delayed preparations, resulted in a hindering of the departure of the Portuguese East India fleet⁹⁵ of the same year and the seizure of some ships at the river-mouth of the Tagus river, Lisbon, Portugal⁹⁶. After his return to the United Provinces, Haultain was appointed commander of the second expedition of the same nature which did not result in success. Like the loss of the *S. Filipe* off Mozambique, the losses of the *Nossa Senhora da Salvação* and *Nossa Senhora dos Mártires*, ships of the 1606 Portuguese homeward bound fleet⁹⁷, were not direct results of Dutch operations. Although the Portuguese managed to save all hands and cargo on board of the *Nossa Senhora da Salvação* at the beach of Cascais⁹⁸, north of the river-mouth of the Tagus river, the same cannot be said for the *Nossa Senhora dos Mártires*, lost in the vicinities of the *São Julião de Barra* fortress⁹⁹, which due to its excavated wood structure which was

⁹⁰ See: O. J. O. Ferreira, op. cit., p. 33.

⁹¹ See: André Murteira, op. cit., p. 107; Cf: J. H. da Cunha Rivara (ed.), op. cit., p. 142; See: Eduardo Frutuoso, Paulo Guinote, António Lopes, op. cit., p. 233; Quirinho da Fonseca, Henrique Lopes de Mendonça, *Os Portugueses no Mar - Memórias Históricas e Arqueológicas das Naus de Portugal*, second edition, Lisbon Comissão Cultural de Marinha, 1989, (reedition fac-similada of the first edition of 1926), p. 413.

⁹² See: O. J. O. Ferreira, op. cit., pp. 33-35.

⁹³ See: Raymundo António de Bulhão Pato (dir.), "Documentos Remettidos da Índia", Lisbon, Academia Real das Sciencias, 1880, vol. I, p. 100.

⁹⁴ See: André Murteira, op. cit., pp. 108-114.

⁹⁵ Cf: Idem, p. 110.

⁹⁶ See: Idem, p. 109.

⁹⁷ See: André Murteira, op. cit., pp. 110-114; Peter Borschberg, *Hugo Grotius, the Portuguese and Free Trade in the East Indies*, op. cit., pp. 179-181; Cf: Raymundo António de Bulhão Pato (dir.), op. cit., pp. 100, 130, f; João C. Reis, João Miguel O. Reis, José João O. Reis, op. cit., p. 264.

⁹⁸ See: Raymundo António de Bulhão Pato (dir.), Idem, *ibidem*; Eduardo Frutuoso, Paulo Guinote, António Lopes, Op. cit., p. 234; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., p. 452.

⁹⁹ See: Raymundo António de Bulhão Pato (dir.), Idem, *ibidem*; Eduardo Frutuoso, Paulo Guinote, António Lopes, Op. cit., p. 234; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., pp. 434, f.

preserved in a layer of pepper corns also became known as the *Pepper Wreck*¹⁰⁰ and will be later dealt in the chapter IV.2.

As the Dutch navigation in the Indian Ocean continued, King Philip II ordered to undertake constructions at Mozambique's fortress *São Sebastião*¹⁰¹, situated at Mozambique Island, to protect the Portuguese East India navigation. In the same document, the King also ordered the observation of the Dutch activities as he thought that there might be plans to construct a fortress at Madagascar,¹⁰² but as it turned out, the Dutch fleets of 1607 and 1608 aimed to conquer the *São Sebastião* fortress¹⁰³.

Instructed to attack the Portuguese and their allies in Asia¹⁰⁴ and following the navigation of Steven van der Hagen¹⁰⁵, the VOC send a fleet of eight ships, which departure took place in 1606, under the command of Paulus van Caerden¹⁰⁶ while the operations of Haultain in the vicinities of the Iberian Peninsula were still ongoing¹⁰⁷. After a long voyage, van Caeren's fleet arrived at Mozambique Island late March 1607¹⁰⁸, an unusual time for Portuguese outward bound fleets but still common for homeward bound fleets crossing the Indian Ocean due to the regime of the Monsoon winds and currents¹⁰⁹. As in 1604, the Dutch had managed to capture two galleons of the homeward bound fleet and the *Galeota*¹¹⁰, a small vessel used for the annual shipment between Goa and Mozambique, but as the men and cargo of the ships had been removed to the fortress, the Dutch did not seize valuable cargo nor took prisoners and therefore tried to conquer the *São Sebastião* fortress, but once again failed to do so. In his letter, van Caerden later accused the size of the cannons or armory used for the

¹⁰⁰ See: Filipe Castro, "The Pepper Wreck, an early 17th-century Portuguese Indiaman at the mouth of the Tagus River, Portugal", in *The International Journal of Nautical Archaeology*, [s.n.], [s.l.], 2003, vol. 32.1, pp. 6-23.

¹⁰¹ See: Raymundo António de Bulhão Pato (dir.), op. cit., p. 1.

¹⁰² See: Idem, p. 2.

¹⁰³ See: O. J. O. Ferreira, op. cit., pp. 33-59; Charles Ralph Boxer, António Durão, Edgar Prestage, *Cercos de Moçambique, Defendidos por Don Estêvão de Ataíde Capitão General, Governador daquela Praça*, Lisbon, Tipografia Silvas, 1937; A. Meyrelles do Souto (ed.), "Hystoria dos cercos que os Olandezes puzerão á fortaleza de Moçambique o anno de 1607 e 1608", in STVDIA, Revista Semetral, Lisbon, Centro de Estudos Históricos Ultramarinos, 1963, vol. XII, pp. 463-548.

¹⁰⁴ See: André Murteira, op. cit., pp. 97, f.

¹⁰⁵ See: Idem, p. 114.

¹⁰⁶ See: Idem, p. 114, f; Alfredo Botelho de Sousa, op. cit., vol. II, p. 83; Charles Ralph Boxer, António Durão, Edgar Prestage (eds.), op. cit., p. 98 N. Mac Leod, op. cit., p. 63; O. J. O. Ferreira, op. cit., pp. 16, f; R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), Op. cit., vol. II, p. 22.

¹⁰⁷ See: André Murteira, op. cit., pp. 114, f.

¹⁰⁸ See: Idem, p. 115; A. Meyrelles do Souto, op. cit., p. 491; Alfredo Botelho de Sousa, op. cit., p. 83; N. Mac Leod, op. cit., p. 64; O. J. O. Ferreira, op. cit., p. 36.

¹⁰⁹ See: Chapter "Comparing the principles of Portuguese and Dutch –Asiatic shipping".

¹¹⁰ See: André Murteira, op. cit., p. 116.

failure¹¹¹. Leaving Mozambique Island for the continuation of the operations in the Indian Ocean on May 29th, the *Zierickzee*, a 760 tons ship¹¹², was hit under gun fire from the S. Jorge tower, hit a shoal and ran aground off Cabaceira at the northern part of the Mozambique bar¹¹³.

After taking refreshments at Mayotte Island¹¹⁴ situated in the northern part of the Mozambique Channel, van Caerden decided to return for a second attempt at Mozambique Island¹¹⁵.

Shortly after the departure of the Dutch, a part of the annual Portuguese outward bound fleet of 1607 under the command of D. Jeronimo Coutinho¹¹⁶, namely the naus *Jesus*, *São Francisco* and the *Nossa Senhora da Penha da França* arrived safely at Mozambique Island¹¹⁷. Being aware of the danger, the administration of Mozambique dispatched a small vessel for the islands of Angoche to¹¹⁸ warn the second part of the Portuguese outward bound fleet under the command of João Correia de Sousa, namely the galleons *São Felipe e Santiago*, *Santo André* and the naus *Nossa Senhora do Loreto* and *Nossa Senhora da Consolação*, which had left Lisbon two weeks after the departure of D. Jeronimo Coutinho¹¹⁹ to abort the planned stay at Mozambique Island and continue directly towards India¹²⁰ but only the *São Felipe e Santiago* and the *Nossa Senhora do Loreto* had managed to do so¹²¹; the *Nossa Senhora da Consolação* and the *Santo André* arrived at Mozambique island in September, shortly after the departure of the van Caerden's fleet in late August¹²².

¹¹¹ See: Idem, p. 117.

¹¹² See: R. Bruijn, F. S. Gaastra, I. Schöffers (eds.), op. cit., vol. II, pp. 20, f.

¹¹³ See: André Murteira, op. cit., pp. 120, f., A. Meyrelles do Souto (ed.), op. cit., p. 522; The *Zierickzee* was attacked and sunk on May 18th. N. Mac Leod, op. cit., p. 65; O. J. O. Ferreira, op. cit., p. 46; By leaving the bar of Mozambique, the Dutch ship *Zierickzee* hit the ground and was taken to the other side (of the entry channel), to the main land to avoid the sinking in the middle of the channel. The ship was burnt after the cargo was taken off. Alfredo Botelho de Sousa, op. cit., p. 91.

¹¹⁴ See: André Murteira, op. cit., p. 122.

¹¹⁵ See: André Murteira, Idem, *ibidem*.

¹¹⁶ See: João C. Reis, João Miguel O. Reis, José João O. Reis, Idem, *ibidem*; Alfredo Botelho de Sousa, op. cit., p. 94.

¹¹⁷ See: André Murteira, Idem, *ibidem*; João C. Reis, João Miguel O. Reis, José João O. Reis, Idem, *ibidem*.

¹¹⁸ See: André Murteira, op. cit., p. 123.

¹¹⁹ See: João C. Reis, João Miguel O. Reis, José João O. Reis, Idem, *ibidem*; Alfredo Botelho de Sousa, Idem, *ibidem*.

¹²⁰ See: André Murteira, Idem *ibidem*.

¹²¹ See: Idem, *ibidem*; J. H. da Cunha Rivara (ed.), op. cit., p. 197; João C. Reis, João Miguel O. Reis, José João O. Reis, Idem, *ibidem*; Alfredo Botelho de Sousa, Idem, *ibidem*.

¹²² See: André Murteira, Idem, *ibidem*; O. J. O. Ferreira, op. cit., p. 48, f.; A. Meyrelles do Souto (ed.), op. cit., p. 533; N. Mac Leod, op. cit., p. 65.

As a result of van Caerden's attempt, the Dutch managed to capture the nau *Nossa Senhora do Loreto* at the *Ilheus Queimados* islands, of which, Portuguese historiography and sources would only refer to the loss of the cargo and the fact, that the ship was burnt¹²³ but, as recent research in Dutch archives shows, the impact of the seizure of the *Loreto's* cargo gave valuable information, provided in the royal Portuguese letters¹²⁴. After the departure of the Dutch, the *São Francisco* was dispatched to continue its voyage towards India¹²⁵ but after hitting a shoal off the church *Nossa Senhora da Baluarte*¹²⁶ area, the ship was declared as not being seaworthy due to an accident which had prior occurred at the Mogincual shoals¹²⁷ and due to the poor conditions of its hull structure¹²⁸, the *cabedal* of 30,000 *cruzados*, the cargo and artillery were taken off and stored in the *São Sebastião* fortress¹²⁹ and the ships mainmast as well as the foremast were cut off¹³⁰. The galleon *Santo André* and the nau *Nossa Senhora da Consolação*, as observed above, arrived at Mozambique Island in September and were forced to stay until the following year's monsoon season for outward bound ships¹³¹.

In late 1607, the VOC dispatched a fleet of ships, nine bigger, the *Fluyts*, and four smaller, the *jachten*, under the command of Pieter Willemsz Verhoeff towards India and Asia¹³², eventually the last bigger fleet before the Twelve Years Truce (1609-1621)¹³³. Provided with the same instructions as van der Hagen and van Caerden, Verhoeff

¹²³ See: André Murteira, op. cit., p. 125, f; J. H. da Cunha Rivara (ed.), op. cit., p. 197; João C. Reis, João Miguel O. Reis, José João O. Reis, Idem, *ibidem*; Alfredo Botelho de Sousa, Idem, *ibidem*, pp. 94, f; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., pp. 429, f; Eduardo Frutuoso, Paulo Guinote, António Lopes, op. cit., p. 235; N. Mac Leod, Idem, *ibidem*.

¹²⁴ See: Peter Borschberg, *Hugo Grotius, the Portuguese and Free Trade in the East Indies*, op. cit., pp. 172-184.

¹²⁵ See: André Murteira, op. cit., pp. 124, 130; João C. Reis, João Miguel O. Reis, José João O. Reis, Idem, *ibidem*; Alfredo Botelho de Sousa, Idem, *ibidem*; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., p. 417, f; Eduardo Frutuoso, Paulo Guinote, António Lopes, Idem, *ibidem*; T. W. Baxter, A. da Silva Rego (eds.), op. cit., pp. 432, f.

¹²⁶ See: T. W. Baxter, A. da Silva Rego (eds.), op. cit., pp. 440-443.

¹²⁷ See: Idem, pp. 442, f.

¹²⁸ See: Idem, *ibidem*.

¹²⁹ See: Idem, pp. 192, f; 430, f; 440-443.

¹³⁰ See: Idem, pp. 440, f; J. H. da Cunha Rivara (ed.), op. cit., p. 197; A. Meyrelles do Souto (ed.), op. cit. pp. 533, 535.

¹³¹ See: André Murteira, Op. cit., p. 130; Alfredo Botelho de Sousa, op. cit., p. 94, f.

¹³² See: André Murteira, Op. cit., p. 130, f; Alfredo Botelho de Sousa, op. cit., pp. 109, f; Charles Ralph Boxer, António Durão, Edgar Prestage (eds.), op. cit., p. 103, f; N. Mac Leod, op. cit., pp. 73, f; O. J. O. Ferreira, op. cit., p. 50; R. Bruijn, F. S. Gaastra, I. Schöffers (eds.), op. cit., pp. 22-25; Johann Verken, "Molukkenreise 1607-1612", in *Reisebeschreibungen von Deutschen Beamten und Krieglern im Dienst der Niederländischen West- und Ostindischen Kompagnien, 1602-1797*, ed. S. P. L'Honoré Naber, II, The Hague, Martinus Nijhoff, 1930, pp. 3-5.

¹³³ See: André Murteira, op. cit., p. 130.

arrived upon Mozambique Island in late July 1608¹³⁴ two months after the departure of the galleon *Santo André*¹³⁵. Still at anchor, Verhoeff encountered the nau *Nossa Senhora da Consolação* and the annual Goa-Mozambique trade vessel but failed to capture the *Nossa Senhora da Consolação* from which they managed to seize some of the cargo namely ivory, Elephant tusks, wine, spices, and other goods¹³⁶. As the ship had remained where it had stranded, the Portuguese burnt the *Consolação* the following night to avoid a second attempt of seizure¹³⁷. The *cabedal* of the *Nossa Senhora da Consolação*, which amounted to 10,000 *cruzados*¹³⁸ was still stored in the *São Sebastião* fortress when the Dutch tried to capture the ships¹³⁹. While waiting for the arrival of the 1608 Portuguese outward bound fleet Verhoeff, like van der Hagen and Caerden, tried to conquer the island and fortress, which later on was abandoned and the focus had shifted towards the possible seizure of ships once again.

The first Portuguese East India fleet of 1608 composed of nine galleons and five naus under the command of D. João Forjaz Pereira, Conde da Feira, left Lisbon on March 29th¹⁴⁰ and arrived near Mozambique Island in mid August. Verhoeff send four ships, three jachten and a ship of higher capacity¹⁴¹ to attack the Portuguese galleon *Bom Jesus* which was unable to escape the attack; after being captured she was brought to proximity of the island of S. Tiago in the Southern Channel of Mozambique Island¹⁴² where the ship was burnt. Shortly after the capture of the *Bom Jesus*, the Dutch set sail for Goa and Asia; during the voyage, the Dutch tried to capture the Portuguese nau

¹³⁴ See: André Murteira, Idem, *ibidem*.

¹³⁵ See: Idem, 132; Alfredo Botelho de Sousa, op. cit., p. 94, f; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., p. 379.

¹³⁶ See: O. J. O. Ferreira, op. cit., p. 50; Johann Verken, op. cit., p. 24; Torsten Arnold, "Historical Background", in Alejandro Mirabal, *Excavation of the Nossa Senhora da Consolação (1608)*, [s.l.], Arqueonautas Publications, 2013, p. 12-15.

¹³⁷ See: O. J. O. Ferreira, op. cit., 50,f; Johann Verken, op. cit., p. 25; A. Meyrelles do Souto (ed.), op. cit., p. 539, f.; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., p. 404; Eduardo Frutuoso, Paulo Guinote, António Lopes, Idem, *ibidem*; AJ. H. da Cunha Rivara, op. cit., p. 220; For further reading about the *Nossa Senhora da Consolação*: Torsten Arnold, op. cit..

¹³⁸ See: T. W. Baxter, A. Da Silva Rego (eds.), op. cit., p. 194, f.

¹³⁹ See: André Murteira, op. cit., p. 133

¹⁴⁰ See: João C. Reis, João Miguel O. Reis, José João O. Reis, op. cit., pp. 264, f.

¹⁴¹ The *Jachten* were classified as *Pataxos* and the *ships of higher capacity* as *Naus* by the Portuguese historiography See Alfredo Botelho de Sousa, op. cit., , p. 109

¹⁴² See: André Murteira, op. cit., pp. 136-138; A. Meyrelles do Souto (ed.), op. cit., p. 544; Alfredo Botelho de Sousa, op. cit., p. 113, f; Eduardo Frutuoso, Paulo Guinote, António Lopes, op. cit., p. 238; O. J. O. Ferreira, op. cit., p. 56, f; Johann Verken, op. cit., p. 34; J. H. da Cunha Rivara, op. cit., p. 220.

Nossa Senhora de Oliveira but to avoid the same, she was burnt in the vicinities of the *Ilheus Queimados*¹⁴³.

The second part of the 1608 Portuguese East India fleet composed of five *sails*, one galleon, one caravel, a *pataxo* and two *urcas*, under the command of Rui Lourenço de Távora, the new appointed Vice-king of the Portuguese *Estado da Índia*, who had left Lisbon on October 24th¹⁴⁴, arrived in Mozambican waters after the departure of the Dutch and therefore was not involved in any military operations.

As a result of the Dutch siege of Mozambique Island, the Portuguese lost the *Nossa Senhora da Consolação* and the *nau de trato* or *galeota de trato* and the galleon *Bom Jesus* and the *nau Nossa Senhora de Oliveira* close to Goa. In that same year, there were several other losses of ships such as the loss of the *nau Nossa Senhora da Palma* off Mogincual shoal, the galleon *Espírito Santo* or *Santo Espírito* off the *Costa da Cafraria*, most likely near the *Terra de Natal*, the *nau Salvação* at the bar of Mombasa¹⁴⁵. Either due to military operations or to other causes, no ship of the Portuguese outward bound fleets of 1608 arrived in India the said year¹⁴⁶. On the other hand, the Dutch did not suffer any loss of a ship like the previous year.

¹⁴³ See: André Murteira, op. cit., p. 139, f, Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., p. 440; Alfredo Botelho de Sousa, op. cit., p. 114.

¹⁴⁴ See: João C. Reis, João Miguel O. Reis, José João O. Reis, op. cit., p. 265.

¹⁴⁵ See: André Murteira, op. cit., pp. 150-142; Alfredo Botelho de Sousa, op. cit., p. 116,f; Eduardo Frutuoso, Paulo Guinote, António Lopes, op. cit., pp. 237-239; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., pp. 441, 452, f; João C. Reis, João Miguel O. Reis, José João O. Reis, op. cit., p. 237.

¹⁴⁶ See: André Murteira, op. cit., p. 151

II.1.1 Observations

Three Dutch East India fleets, the first under the command of Steven van der Hagen (1604), the second under the command of Paulus van Caerden (1607) and the last under the command of Pieter Willemsz. Verhoeff (1607/1608) attempted but failed to conquer the *São Sebastião* fortress at Mozambique Island, the important way-station of the Portuguese *Carreira da Índia*. While the Dutch only suffered the loss of one ship, the *Zierickzee*, in 1607, several Portuguese naus and galleons like the 1606 *Nossa Senhora do Loreto* off the Ilheus Queimados, the 1608 *Nossa Senhora da Consolação* off Mozambique Island, *Nossa Senhora de Oliveira* off Ilheus Queimados or *Bom Jesus* off Mogincual shoal were either captured and seized, or burnt to avoid the same; other ships were lost due either to bad navigation or condition of the ship such as the 1606 *Nossa Senhora da Salvação* off Cascais, Portugal, the *Nossa Senhora dos Mártires* off São Julião de Barra, Lisbon, Portugal, the 1607 *São Francisco* or the 1608 *Nossa Senhora de Palma* off Mozambique. Either caused by direct impact due to military operations in Iberian or Mozambican waters, or due to indirect impact such as bad navigation or condition of the ships, the annual Portuguese East India fleets, the *Carreira da Índia*, were interrupted and, in times of military struggle of Portuguese-Dutch supremacy for the spice trade, a continuous shipment of financial or military support for the Portuguese *Estado da Índia* intercepted. On the other hand, Dutch East India shipping did not lose many ships and even managed to expand its sphere of influence in the East Indies. Part of the general plan, the interception and break-down of the Portuguese East India shipping was not achieved as the annual Portuguese fleets continued. Nevertheless, due to the number of ships lost during the outward or homeward bound voyage, Portugal lost its position on the European market for oriental goods due to missing cargoes from Asia. Also, the ships and men lost had to be replaced, an additional cost in times of difficulties and financial bottle-neck situations.

II.2 The Twelve Years Truce

1609-1621

Following the first encounters and naval battles fought for European overseas interests and supremacy, in this case the interception of the annual Portuguese East Indies shipping, the *Carreira da Índia*, and the three attempts to conquer Mozambique Island by the Dutch, the Twelve Years Truce (1609-1621)¹⁴⁷ is generally seen and characterized as a period of calm due to the absence of planned military operations in European waters or the western Indian Ocean¹⁴⁸. Encounters of ships, such as the *Witte Leeuw* incident, a Dutch ship sunk by the two Portuguese homeward bound naus *Nossa Senhora de Nazaré* and the *Nossa Senhora de Vencimento e Monte do Carmo* in the vicinities of Santa Helena in 1613¹⁴⁹, were more of an accidental momentum than a planned military operation documented by the virtual nonexistence of shipwrecks on both sides¹⁵⁰.

It was agreed by both sides that each party maintained their occupied overseas possessions and no further expansion was supposed to be undertaken during the period of twelve years¹⁵¹. As the process of negotiations for the Truce was still in process, the Dutch dispatched the small jacht *Goede Hoop* to instruct the captain of the 1607 Dutch outward bound East India fleet, Pieter Willesmz. Verhoeff, to maintain and, if possible, to extend the Dutch sphere of influence, especially regarding the Spice Islands by creating commercial and friendly relationships with the local authorities¹⁵². As the Truce was signed in the United Provinces on April, 9th 1609 both sides accepted to send

¹⁴⁷ About the Twelve Years Truce: Jonathan I. Israel, op. cit., pp. 80-86, 101-106; André Murteira, “El Impacto la Tregua de los Doce Años en los dominios ultramarinos portugueses”, in Bernardo García García, Manuel Herrero Sánchez, Alain Hugon (eds.), *Actas del X Seminario Internacional de Historia: el arte de la prudencia-la Tregua de los Doce Años en la Europa de los Pacificadores (1598-1618)*, Madrid, Fundación Varlos Amberes, 2012, pp. 275-293.

¹⁴⁸ See: André Murteira, op. cit., p. 153

¹⁴⁹ See: Idem, pp. 153-158; João C. Reis, João Miguel O. Reis, José João O. Reis, op. cit., pp. 265, f.; Eduardo Frutuoso, Paulo Guinote, António Lopes, *As Armadas da Índia 1497-1835*, Lisbon, Comissão Nacional para as Comemorações dos Descobrimentos Portugueses, 2002, p. 155; R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), op. cit., vol. II, pp. 16, f.

¹⁵⁰ See: Eduardo Frutuoso, Paulo Guinote, António Lopes, *Naufrágios e Outras Perdas da “Carreira da Índia”: Séculos XVI e XVII*, op. cit., pp. 239-244; R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), op. cit., vol. II, pp. 26-49; Idem, vol. III, pp. 14-25.

¹⁵¹ See: Raymundo António de Bulhão Pato (dir.), op. cit., pp. 252, f.

¹⁵² See: N. Mac Leod, op. cit., p. 81; Alfredo Botelho de Sousa, op. cit., vol. I, pp. 142, f.

a representative of each party on board of a Dutch vessel, the jacht *Hazewind* to deliver the news of the conceived Truce in the East Indies¹⁵³. However, it is stated that the representative from Spain and Portugal did not board the said ship in February 1610¹⁵⁴ and the vessel continued its voyage towards Bantam. After the signature of the Truce in 1608 and still before the official commencement of the agreed freedom of navigation, the Portuguese king send a letter to the Vice-king Ruy Lourenço de Távora instructing him to try to convince the local authorities and kings not to allow Dutch-Asiatic shipping and commercial activities in their respective ports¹⁵⁵.

During the time of the Truce, the Portuguese king ordered the fortification and expansion of the defense system of Mozambique Island due to its importance as way-station for the Portuguese outward bound fleets and *Estado da Índia*¹⁵⁶, the necessary repairs after the attacks in 1607 and 1608 and the possibility of a new attack and plan of conquering the *São Sebastião* fortress¹⁵⁷. Fearing disobedience and eventually the breaking of the Truce by the Dutch, the Portuguese king received news annually on the preparations and departure of outward bound Dutch East India fleets by local informants which immediately were sent towards India¹⁵⁸ but also received direct information concerning the Dutch-Asiatic shipping by the Vice-king and other officials.

Until the second decade of the 17th century, the European struggle for supremacy in the East India trade involved mainly the Luso-Dutch warfare in Asian waters and the Western Indian Ocean. The entrance of the English East India Company (EIC) created a new hostile environment, especially due to the construction of English factories in the Indonesian Archipelago¹⁵⁹ and the Persian Gulf region¹⁶⁰. Negotiations at the two London conferences in 1613 and 1615 and the possibility of a merger of the two European East India Companies¹⁶¹, the VOC and the EIC, endangered the Portuguese East India trade. Although the merger of the VOC and EIC was not finalized, a “loose

¹⁵³ See: Alfredo Botelho de Sousa, op. cit., p. 161; R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), op. cit., vol. II, op. cit., pp. 26, f..

¹⁵⁴ See: Alfredo Botelho de Sousa, op. cit., p. 162; R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), Idem, *ibidem*.

¹⁵⁵ See: Raymundo António de Bulhão Pato (dir.), op. cit., vol. I, pp. 360, f.; Alfredo Botelho de Sousa, op. cit., p. 142.

¹⁵⁶ See: Raymundo António de Bulhão Pato (dir.), op. cit., vol. I, pp. 1, 116-118.

¹⁵⁷ See: Idem, vol. IV, p. 154.

¹⁵⁸ See: Idem, vol. II, pp. 261-263, 274-277, 312-323.

¹⁵⁹ See: Jonathan I. Israel, op. cit., pp. 103, f.

¹⁶⁰ See: John Keay, op. cit., pp. 74-76, 94, 102-108.

¹⁶¹ See: Idem, p. 105

treaty of collaboration”¹⁶² which led to the “treaty of defense” against the Portuguese and Spanish (1619-1623)¹⁶³ was settled. Although the Dutch and English had agreed on collaborating against the Portuguese and Spanish, a naval conflict for the supremacy of the trade in the Indonesian Archipelago between the VOC and EIC in the vicinities of the Bantam islands and Batavia (nowadays Jakarta)¹⁶⁴ led to the expulsion of the English and the definite establishment of the VOC’s headquarters at Batavia.¹⁶⁵ This, together with the 1618 *Zwarte Leeuw* incident, a Dutch outward bound vessel which was captured by the English in the vicinities of Bantam in December 1618¹⁶⁶ are evidence for different visions regarding economical overseas politics.

Portuguese attempts to negotiate an extension of the Twelve Years Truce or a new kind of peace treaty which existed since 1619¹⁶⁷ did not result in a continuation of a more or less peaceful environment. The VOC voluntarily abandoned the project¹⁶⁸ due to the above mentioned Anglo-Dutch treaty but also due economical interests of expanding the commercial relationships in Asia. The outbreak of the Thirty Years War (1618-1648) in Europe had its part in taking a decision on the renewal of the rivalries as well¹⁶⁹.

At the dawn of the English East India Company’s trade in the Persian Gulf region of which the raw silk commerce played the major point of interest for the Europeans, encounters with the Portuguese such as the 1613 *Nossa Senhora da Nazaré* incident¹⁷⁰ and the loss of the 1616 galleon *São Julião* which was voluntarily burnt at the Comoro islands to avoid being seized by the English¹⁷¹ were rare and naval battles

¹⁶² See. Idem, p. 105, f.

¹⁶³ See: José Eugenio Burao Mateo, “The Spanish Experience in Taiwan, 1626-1646: The Baroque Ending of a Renaissance Endeavour”, Hong Kong, Hong Kong University Press, 2010, p. 17.

¹⁶⁴ See: Jonathan I. Israel, op. cit., p. 105.

¹⁶⁵ See: Peter Borschberg, *The Singapore and Melakka Straits; Violence, Security and Diplomacy in the 17th Century*, op. cit., p. 122.

¹⁶⁶ See: Willem Ysbrantsz. Bontekoe, *Het journal van Bontekoe: de gedenkwaardige beschrijving van de reis naar Oost-Indie van Schipper Willem Ijsbrantsz. Bontekoe uit Hoorn, in de jaren 1618 tot en met 1625*, Schoorl, Pirola, 1989, p.130; R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), op. cit. vol. II., pp. 36, f.

¹⁶⁷ See: *Documentos Remetidos da Índia ou Livro das Monções*, Lisbon, Imprensa Nacional, 1935, pp. 235, 342; António da Silva Rego (dir.), *Documentos Remetidos da Índia ou Livro das Monções*, Lisbon, Imprensa Nacional-Casa da Moeda, 1977, vol. VIII, pp. 46, f; Idem, vol. IX, 1978, pp. 74, f, 120, f.

¹⁶⁸ See: James C. Boyajian, op. cit., pp. 185, f.

¹⁶⁹ See: Idem, *ibidem*.

¹⁷⁰ See: Eduardo Frutuoso, Paulo Guinote, António Lopes, *Naufrágios e Outras Perdas da “Carreira da Índia”*: *Séculos XVI e XVII*, op. cit., p. 240.

¹⁷¹ See:; Alfredo Botelho de Sousa, p. cit., vol. II, pp. 503-509; Raymundo António de Bulhão Pato (dir.), *Documentos Remetidos da Índia ou Livro das Monções*, op. cit., vol. IV, pp. 270, f., 347; John Keay, op. cit., pp. 101, f; Eduardo Frutuoso, Paulo Guinote, António Lopes, op. cit., p. 242; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., pp. 428, f.

are seen as an exception. During the decade 1610-1620, the Persian Shah had constantly expanded his sphere of political and economical influence in the Persian Gulf region which the Portuguese tried to counteract with several attacks on the western shores such as nowadays Bahrain, Oman and Qatar. Hormuz, situated on the eastern shore of the entry to the Persian Gulf was one of the most important Portuguese fortresses of *Estado da Índia* controlling the maritime trade of the Persian waters for more than a century¹⁷². As frictions between the parties involved grew, a military conflict which led to the Portuguese loss of Hormuz to the joint English and Persian forces was inevitable.

II.2.1 Observations

During the second decade of the 17th century, the strained relationship between the Portuguese *Estado da Índia* and the Dutch East India Company seemed to have eased during the Twelve Years Truce. The appearance of the English East India Company at the scenario of the struggle for European supremacy in the spice trade and for any other desired Asian goods such as silk represents a new momentum and a third party involved. Negotiations for a possible merger of the two private European East India companies and the “loose” treaty of collaboration were significant changes challenging the Portuguese *Estado da Índia*.

Having tried to maintain and restore its economical relationships and commerce in Asian waters, the Portuguese initiatives, following Boyajian, failed mainly due to internal difficulties such as the financial incapacity to build the ten galleons in Indian shipyards, meant for the escort of the Portuguese China trade, caused by the misuse of the *Estrada's* treasury under the reign of Vice-king D. Jerónimo d' Azevedo¹⁷³. The Habsburg policy regarding the Cape route during the second decade of the 17th century had its impacts on the decline of the *Carreira* shipping and the shortage of the revenues

¹⁷² See: John Keay, op. cit., p. 104.

¹⁷³ See: James C. Boyajian, op. cit., pp. 156,f.

for the annual carracks¹⁷⁴. The European competitors of the Portuguese Asia shipping had established and underlined their presence in Asian waters but still were far from the exclusion of their main competitor, the *Estado da Índia* and its commercial network.

However, the hostile environment grew and a continuation of the Twelve Years Truce or any other treaty of peaceful economic relationships seemed unlikely to be established. Frictions and tensions between the European naval powers grew and the hostile environment was a rather stable momentum during the decade of 1620 and a continuation of the prior one.

Nevertheless, the relatively absence of shipwrecks caused by military operations by any European naval power or suffered by the same are scarce and if occurred, mainly characterized as incidents. Regarding the case of the 1616 *São Julião* incident, Quirinho da Fonseca and Henrique Lopes de Mendonça attributed the loss of the said ship to the Dutch instead of the English¹⁷⁵.

¹⁷⁴ See: Idem, pp. 96-105.

¹⁷⁵ See: Note 164.

II.3 1621-1623

The recurrence of naval conflicts

By the year 1621, European nations were involved in the Thirty Years War (1618-1648). The succession of Philip IV (1621-1665) to the throne of Spain (and king of Portugal as Philip III until 1640) in the same year inflamed the Spanish-Dutch conflict once again and Dutch-Iberian shipping was prohibited by a new embargo, affecting less the Portuguese than the Spanish¹⁷⁶. As the Twelve Years Truce expired and no continuation of a rather peaceful relationship between the Dutch and Portuguese was completed, the *Armada of Defense*, a joined naval force against the Spanish and Portuguese shipping, was created.

Regarding the recurrence of naval conflicts and planned military operations in the Western Indian Ocean, the two 1621 Dutch outward bound ships *Wappen van Rotterdam* and the *Mauritius*, which had left Holland in November and December of the previous year¹⁷⁷ encountered the 1622 homeward bound Portuguese nau *São João Baptista*, which had left Goa accompanied by the *Paraizo* in early March of the same year and started to pursue and attack her¹⁷⁸. Departing quite late for the homeward bound voyage of the *Carreira da Índia*, the two ships were separated from each other in the vicinities of the Cape of Good Hope¹⁷⁹. After the encounter between the two European naval powers which lasted 19 days and did not result in a seizure of the Portuguese vessel, the *São João Baptista* ran aground on the South African shores of the region known as *Terra de Natal*¹⁸⁰.

¹⁷⁶ See: Jonathan I. Israel, op. cit., pp. 124, f.

¹⁷⁷ See: R. Bruijn, F. S. Gaastra, I. Schöffer (eds.), op. cit., vol. II, pp. 48,f; André Murteira, op. cit., p. 171.

¹⁷⁸ See: André Murteira, Idem, pp. 170-174; Alfredo Botelho de Sousa, op. cit., vol. III, p. 148, ff; N. Mac Leod, op. cit., pp. 272-275.

¹⁷⁹ See: André Murteira, Idem, *ibidem*.

¹⁸⁰ See: Idem, p. 172; Charles Ralph Boxer, *Dom Francisco da Gama, Conde de Vidigueira e a sua viagem à Índia no ano de 1622*, Lisbon, Anais Clube Militar Naval, vol. 5-6, Imprensa da Armada, 1930, p. 5; Eduardo Frutuoso, Paulo Guinote, António Lopes, *Naufrágios e Outras Perdas da "Carreira da Índia": Séculos XVI e XVII*, op. cit., p. 244; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., pp. 386, f.

¹⁸⁰ See: Charles Ralph Boxer, Idem, p. 6.

Simultaneously, while the first Anglo-Dutch *fleet of defense*, composed of five Dutch and five English ships of higher capacity, was operating in the far oriental parts of Asia, the theatre of possible Anglo-Dutch attacks on Spanish or Portuguese Asiatic shipping situated between Macau and Japan¹⁸¹, and the Anglo-Persian battle against the Portuguese in Ormus was ongoing, a second *fleet of defense*, composed of seven Dutch and four English ships¹⁸² was sent on a mission to attack the Portuguese *Carreira* outward and homeward bound shipping in the Western Indian Ocean and, if possible, to undertake a blockade of Portuguese Goa.¹⁸³ However, it suffered a defragmentation of the joint forces before the attack: two Dutch ships were sent back to Batavia, two Dutch and one English ship towards the Red Sea and the *t'Hert* was lost after chasing a Portuguese ship between Madagascar and Mozambique Island, the *São Pedro*¹⁸⁴, which, after being captured and seized was burnt.

Departing Lisbon in March 1622, the annual Portuguese outward bound fleet under the command of the new Vice-king D. Francisco da Gama, initially composed of four naus *da Carreira*, two galleons and 2 *pataxos*¹⁸⁵, was weakened by the separation of the nau *São Tomé* and the galleon *Trindade* close to the passage of the Equator¹⁸⁶.

Continuing its journey towards India, the fleet encountered three sails in the vicinities of the Cape of Good Hope, the *São João Baptista* attack¹⁸⁷, but passed without intervention due to the misjudgment and non recognition of the Dutch attack on the Portuguese ship¹⁸⁸. After verifying that the 1622 Portuguese outward bound fleet had not arrived yet in Mozambique Island, the Anglo-Dutch fleet waited for their arrival between Mozambique Island and the Angoche islands group situated south of Mozambique Island in the Mozambique Channel without an attempt to attack the *São Sebastião* fortress. The remaining six ships under the command of Jacob Dedel encountered the four Portuguese sails, the *São José*, the *São Carlos*, the *Santa Teresa de*

¹⁸¹ See: André Murteira, op. cit., p. 182.

¹⁸² See: Idem, pp. 177-179; Charles Ralph Boxer, op. cit., p. 8, f.; Alfredo Botelho de Sousa, op. cit., vol. III, pp. 190, f; N. Mac Leod, op. cit., pp. 275, f; R. Bruijn, F. S. Gaastra, I. Schöffers (eds.), op.cit., vol. II, pp. 34,f, 40-45.

¹⁸³ See: André Murteira, Idem, pp. 177, f.

¹⁸⁴ See: Charles Ralph Boxer, op. cit., p. 9; Alfredo Botelho de Sousa, Idem, *ibidem*; N. Mac Leod, op. cit., p. 276; R. Bruijn, F. S. Gaastra, I. Schöffers (eds.), Idem, pp. 40, f.

¹⁸⁵ See: Charles Ralph Boxer, Idem, p. 5.

¹⁸⁶ See: Idem, p. 6.

¹⁸⁷ See: Charles Ralph Boxer, op. cit., p. 7.

¹⁸⁸ See: Idem, *ibidem*.

Jesus and the galleon *São Salvador* in the vicinities of the Mogincual shoals on June 23rd concentrating their forces on the weakest of the Portuguese ships, the *São José*.

Verifying the situation of the *São José*, the *São Carlos* and the *Santa Teresa de Jesus* managed to escape the enemy's attacks but were both lost while entering the harbor of Mozambique Island¹⁸⁹ and only the galleon *Trindade* safely managed to enter the said place. Still, the Anglo-Dutch fleet managed to salvage an approximate amount of 68,553 *cruzados* in *reales-of-eight* of the *São José*¹⁹⁰ before her final sinking upon the Mogincual shoals¹⁹¹. The loss declared by the Vice-king D. Francisco da Gama was accounted at approximately 18,000 *cruzados* stored in nine boxes¹⁹². Without any further attempt to conquer Mozambique Island as in the first decade of the 17th century, the fleet set sail for Goa.

As news of the loss of Ormus arrived in Lisbon late 1622, the planned annual outward bound fleet of three naus was reinforced by three galleons and two *pataxos*. As the revenues of the *Carreira* trade were declining and the *Silver Armada* from the *New World* had not arrived in Spain due to a storm in the Caribbean that caused, at least, the loss of *Nuestra Señora de Atocha*, the *Santa Margarita* and another ship¹⁹³, King Philip was urged to accept different forms of financing the 1623 outward bound fleet by using part of his own money as well as a loan given by the Lisbon *Santa Casa da Misericórdia*. Of the 1623 Portuguese fleet, only the galleon *Santo André* arrived in Goa the same year, the remaining ships were forced to winter at Mozambique Island, where, due to a storm in January 1624, the galleon *São Simão*, the nau *Santa Isabel* and the

¹⁸⁹ See: André Murteira, op. cit., pp. 183, f.; Alfredo Botelho de Sousa, op. cit., vol III, pp. 191-193, f.; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., p. 455; Eduardo Frutuoso, Paulo Guinote, António Lopes, op. cit., pp. 244, f.

¹⁹⁰ See: André Murteira, op. cit., pp.184, f; Sir William Foster, *The English Factories in India (1622-1623): A calendar of documents in the India Office and British Museum*, Oxford, Clarendon Press, 1908, p.145.

¹⁹¹ See: André Murteira, op. cit., pp. 181-184; Eduardo Frutuoso, Paulo Guinote, António Lopes, op. cit., p. 244; Quirinho da Fonseca, Henrique Lopes de Mendonça, op. cit., pp. 247, f; Alejandro Mirabal, *Spanish Coins in Mozambican Waters – The Numismatic Collection of the São José (1622)*, op. cit., pp. 10-13.

¹⁹² See: André Murteira, *ibidem*; Charles Ralph Boxer, op. cit., p. 12; A. da Silva Rego (dir.), op. cit., vol. X, p. 282.

¹⁹³ See: Carol Tedesco, *The Deep Sea Tortugas Shipwreck, Florida (1622): the Silver Coins*, Odyssey Papers 30, Odyssey Marine Exploration, 2013; Idem, *Treasure Coins of the Nuestra Señora de Atocha & the Santa Margarita*, Key West Florida, Seastory Press, 2010.

pataxo *São Braz* were declared not seaworthy due to the damages suffered¹⁹⁴. The rest of the prior year's fleet arrived in Goa later in 1624.

Existing plans for a continuation of the Western Indian Ocean *fleet of defense* in 1624 were abandoned by the English as the struggle for the supremacy in South East Asia grew due to different opinions regarding the Portuguese and Spanish Asiatic shipping and to the difficulties in attacking the outward bound *Carreira* shipping in particular but specially due to the 1623 incident of the shared factory and fort of Amboina. Due to the discontinuation of the Anglo-Dutch treaty of defense and a rather unobstructed voyage, the 1624 Portuguese outward bound fleet of two naus and six galleons, which had left Lisbon in March, arrived in India in September of the said year.

II.3.1 Observations

After the expiration of the Twelve Years Truce, the European struggle for supremacy of the spice trade entered a new phase. The joined Anglo-Persian forces launched an attack on Ormus and conquered one of the most important strongholds of the Portuguese *Estado da Índia* controlling the entrance to the Persian Gulf region. The 1622 homeward bound *São João Baptista* was attacked by two Dutch outward bound ships close to the Cape of Good Hope and lost.

During a short time period, the Anglo-Dutch *fleets of defense*, one operating in the Far East, the other in the Western Indian Ocean, of which the later was involved in the attack on the 1622 Portuguese outward bound fleet under the command of the new Vice-king D. Francisco da Gama and the loss of the nau *São José* at Mogincual shoals and the galleons *São Carlos* and *Santa Teresa de Jesus* at the harbor of Mozambique Island.

¹⁹⁴ See: André Murteira, op. cit., p. 240; Eduardo Frutuoso, Paulo Guinote, António Lopes, op. cit., pp. 245, f.

Due not only to enemy attacks on the Portuguese outward and homeward bound shipping, the *Carreira* lost several ships on the Eastern African shores, especially a vital part of the 1623 outward fleet which, by wintering at Mozambique Island, was struck by a storm and three of the ships lost. Also, the losses of ships of the 1622 Spanish *Silver Armada* in the Caribbean overshadowed the financial situation of the Portuguese *Estado da Índia* and the outfitting of the 1623 outward bound fleet in particular.

Due to the discontinuation of the Western Indian Ocean Anglo-Dutch *fleet of defense*, the 1624 outward bound fleet did not suffer any attack. As no further attempt either to attack the Portuguese Asiatic shipping in the Western Indian Ocean and in the vicinities of Mozambique Island occurred neither to conquer the *São Sebastião* fortress, the European struggle for the supremacy was rather focused on the Eastern parts of the Indian Ocean, the Indian coast and the Straits of Melaka in particular.

II.4 Final Remarks

During the course of the first quarter of the 17th century, the European Asiatic shipping and spice trade faced several changes. The joining of several companies to Dutch Asiatic in 1602, uniformed by the creation of the United Dutch East India Company (VOC) caused a variety of implications regarding trade, policy and economy. Until the appearance of the Dutch, and later the English, European Asiatic trade was a monopoly of the Portuguese that, after 1580, was ruled by the Spanish kings. The struggle for the independence of the Lower Provinces against the Habsburg Empire was extended and taken overseas as a struggle for free trade and access to spices and other oriental goods as several decrees of the Spanish expelled the Dutch from the Lisbon market. Gaining access for Asiatic shipping was not only undertaken by diplomacy but rather by planned military operations in European and Asian waters. Several attacks, blockades and attempts to hinder the Portuguese trade and shipping in the East, the *Carreira da Índia*, caused losses of ships and an increase of extraordinary expenses

such as the fortification of strategic coastal points and fortresses such as Mozambique Island which, by a decline of the revenues, were difficult to deal with.

Mozambique Island, the important way-station of the *Carreira*'s outward bound shipping was one of the theatres of the European struggle for supremacy during the first and third decades of the 17th century. The attempts to conquer the island with its harbor and the *São Sebastião* fortress in 1604, 1607 and 1608, the attacks on the Portuguese outward and homeward bound shipping in its surroundings during the same time and, after the discontinuation of the Twelve Years Truce (1609-1621) ended with the last planned and executed military operations in the Western Indian ocean by the joined Anglo-Dutch forces, the *fleet of defense* in 1622. Also, the establishment of the English Asiatic commerce, mainly with the Persians led to the conquest of the Portuguese possession of Ormus (1622), one of the strongholds of the *Estado da Índia* and the loss of the control over the Persian Gulf trade.

The effects of the European naval combats in East Africa resulted, as a direct impact, in several captures and losses of ships such as the 1606 *Nossa Senhora do Loreto*, the 1608 *Nossa Senhora da Consolação* and *Bom Jesus* as well as the 1622 *São João Baptista*, the *São José*, the *São Carlos* and the *Santa Teresa de Jesus* but the Portuguese Asiatic shipping also suffered shipwrecks due to non-military impacts such as the losses of the 1623 outward bound ships *São Braz*, *São Simão*, and the *Santa Isabel* due to a storm in early 1624. Shipwrecks not only symbolized loss of cargo and money but moreover the loss of the means of transport, the ship itself, which had to be replaced, signified a decline of economic and military operational material.

Indirectly, the *Carreira* suffered from lesser revenues of the spice trade but also from delays of the scheduled calendar of arrival and departure in Asia and Europe due to blockades and lesser quantity of goods arriving from the Far East meant for Europe. As Portuguese ships usually left Lisbon in March, latest in April, arriving in Goa late September the same year and were ready for the homeward bound voyage departing in January and arriving in Lisbon between August and September, due mainly to the Monsoon regime of the Indian Ocean, the military operations were quite predictable and easy to hinder however, in the aftermath, the Dutch did not succeed in the attempt to rule out the Portuguese.

Table 1 illustrates the outward bound and homeward Portuguese *Carreira* shipping during the years in which the Dutch and English attacks occurred. Losses of ships in the Mozambique Channel are indicated by the total number (figure 1 in the column “Loss” and “Percentage of loss”) as well as caused by enemies’ attacks (figure 2 in column “Loss” and “Percentage of loss”); the captures and losses of the 1604, 1608 and 1622 *nau de trato* or *galeão de trato* (annual voyage Goa-Mozambique-Goa) in Mozambican waters are excluded as not being part of the outward bound or homeward bound *Carreira* shipping.

Year	Outward	Arrival	Arrival	Discontinued/	Loss	Percentage
	Bound	same year	following years	Aborted		of loss
1604	5	1	0	3	1/ 0	20/ 0
1607	3	2	0	0	1/ 0	33/ 0
1607	4	1	1	0	2/ 1	50/ 50
1608	6	0	1	1	4/ 0	67/ 0
1608	8	0	4	2	2/ 1	25/ 50
1616	3	1	0	1	1/ 1	33/ 100
1622	4	1	0	0	3/ 3	75/ 100
1622	4	3	0	1	0/ 0	0/ 0
1623	8	1	3	0	4/ 0	50/ 0
Year	Homeward	Arrival	Arrival	Discontinued/	Loss	Percentage
	Bound	same year	following years	Aborted		of loss
1622	2	1			1/ 1	50/ 100

Table 1: “Effects of the Dutch and English attacks on the *Carreira da Índia*”¹⁹⁵

¹⁹⁵ See: André Murteira, op. cit., pp. 148-152, 208-210; Eduardo Frutuoso, Paulo Guinote, António Lopes, *As Armadas da Índia 1497-1835*, op. cit., pp. 149-154, 157, 160-163; *Naufrações e Outras Perdas da “Carreira da Índia”: Séculos XVI e XVII*, op. cit., pp. 235-246.

III Underwater Archaeology

III.1 The underwater geological formations of the Mozambique Channel and the *Carreira da Índia*

The passage through the Mozambique Channel, especially for the outward bound Portuguese Asiatic shipping was one of the most dangerous sections of the *Carreira da Índia* due to various reasons. First, the Mozambique Channel, the strait between the island of Madagascar and the African mainland, was the direct path for the outward bound shipping from Portugal towards Mozambique Island, the important *entrepôt* of the *Carreira da Índia* as it was the first place for taking refreshments and curing the sick after leaving the Cape Verde islands archipelago in the Eastern Atlantic Ocean and having had passed the Cape of Good Hope. Although known for its difficult navigation since the early days of the Portuguese Cape route trade, Mozambique Island became one of the most important way stations where, during the course of the 16th and 17th century, a factory, a hospital and several defense systems and ultimately the *São Sebastião* fortress were constructed.

Entering the channel on the outward bound voyage, the ships usually took a northeastern course steering towards the Baixos da Índia shoals, then directing the course closer to the mainland and passing between the Parcel de Sofala and *João de Nova* Island towards the Primeiras Islands group heading towards Mozambique Island¹⁹⁶. Stated in his notes regarding the *Carreira* in 1556, João Pereira Damtas mentioned the adverse winds and currents in the section of the Parcel de Sofala area, the

¹⁹⁶ See: Comandante Humberto Leitão, *Dois roteiros do século XVI, de Manuel Monteiro e Gaspar Ferreira Reimão, atribuídos a João Baptista Lavanha*, Lisbon, Centro de Estudos Históricos Ultramarinos, 1963, pp. 49-53.

calmness of the winds which sometimes occurred, caused sickness and death of the seamen¹⁹⁷.

As stated in the *Roteiros*¹⁹⁸, the contemporary navigation descriptions and sailing directions of the 16th and 17th century, the passage followed after the *Parcel* is characterized by several dangerous shoals and sandbanks, especially regarding the hazards situated between the Primeiras Islands group, situated at 17°5'S and 17°17'S latitude and Mozambique Island, situated in 15°02'S latitude, 40°44'E longitude. Following the instructions of the *Roteiro* of navigation, reedited by Gaspar Ferreira Reimão in 1612¹⁹⁹, Portuguese pilots were reminded of a careful navigation avoiding a course too close to the shore as some of the reefs and sandbanks could reach up to two *léguas* into the channel itself. Regarding the roadstead of Mozambique Island, these hazards were and still are, namely, the reefs and sandbanks surrounding the Primeiras Islands group and the Angoche islands, situated between 16°21'S and 16°41'S latitude, the Mogincual shoal, actually characterized by three distinctive shoals, namely Chataputa, Infusse and Mucalanga, situated in 15°35'S latitude and between two to three nautical miles off shore²⁰⁰, a patch called Os Currais, situated in 15°46'S latitude and today known as Mecade shoal²⁰¹. Before entering the harbor of Mozambique Island, the 1607 outward bound nau *São Francisco* struck parts of the Mogincual shoals nine times, causing considerable damage to the hull structure and leaking water as stated in the historical documentation²⁰².

¹⁹⁷ See: “Apontamentos que fez João Pereira Damtas por mandado del Rey D. João terceiro no anno de 1556.”, *sobre o modo de remediar as perdas das naus da carreira e navegação da Índia*. Biblioteca do Palácio de Ajuda, códice 51-VI-54, fols. 85-88.

¹⁹⁸ See: “Roteiros”, in Luís de Albuquerque (dir.), Francisco Contento Domingues (coord.), *Dicionário de História dos Descobrimentos Portugueses*, Lisbon, Círculo de Leitores, 1994, vol. II, pp. 390, f.

¹⁹⁹ See: Gaspar Ferreira Reimão, *Roteiro da Navegação e Carreira da Índia, com seus caminhos, & derrotas, sinais, & aguageis & diferenças da agulha: tirado do que escreveu Vicente Rodrigues & Diogo Afonso, pilotos antigos, agora novamente acrescentado a viagem de Goa por dentro de São Lourenço, & Moçambique, & outras muitas cousas, & advertências, por Gaspar Ferreira Reimão; prefaciado por A. Fontoura da Costa*, 2nd edition, Lisbon, Agência Geral das Colónias, 1939.

²⁰⁰ See: Idem, p. 101.

²⁰¹ See: Idem, p. 98.

²⁰² See: T. W. Baxter, A. da Silva Rego, op. cit., vol., IX, pp. 442, f.



Figure 2: “Carta Reduzida do Canal de Mossambique”, ca. 1784²⁰³

²⁰³ See: Jacinto José Paganino, “Carta Reduzida do canal de Mosambique entre a costa de África e a Ilha de S. Lourenço athe a Equinocial”, ca. 1784, BNL, C.C. 58 A.

Mozambique Islands harbor was also a hazard for the Portuguese outward bound shipping. Usually arriving at the said place at the end of the Monsoon season, the bigger ships of the *Carreira*, the naus and galleons could only enter the Northern channel at high tide between noon and late afternoon by passing between *São Jorge* Islet and *Cabaceira* shoal (reaching from the mainland into the entry channel), passing the *Lewen Bank* and the *São Sebastião* fortress with its shoal surrounding the point of *Nossa Senhora do Baluarte*, to reach the inner harbor between the mainland and Mozambique Island. The Northern passage or entry channel is characterized by depths ranging from 9 to 40m depth.

Only small ships up to 300 tons were able to enter the outer harbor situated on the Eastern part of Mozambique Island the beach of *Santo António*, also known as the *old fortress* and the *São Sebastião* fortress by passing the Southern channel between *São Jorge* and *Santiago* islet²⁰⁴.

Anchorage at Mozambique Island was, and still is, characterized by a tidal range of several meters reaching up to 6m at some areas. The tidal range velocity causes a current generally registered as up to 4 knots. Bigger naus and galleons therefore could have been floating while anchoring at high tide but set on the seabed on low tide causing damages to the stressed hull structure after the long voyage passing the Atlantic Ocean and the Cape of Good Hope, a factor usually not taken into consideration for the short life span of the *Carreira* ships or losses of outward bound vessels. This data justifies the loss of the 1607 *São Francisco* after wintering and part of the 1623 outward bound fleet which, while wintering and due to a storm, was lost in early 1624 as described above.

Furthermore, the surroundings of Mozambique Island are characterized by the river mouth of the Calombo, Lombe and Mossuril (Calumbo) rivers forming the Mossuril Bay; its constant inflow of sweet water, sediments and microorganisms posed as another hazard for the wood structure of the *Carreira* ships, causing a slow but constant rotteness of the ships by mineral bacteria when wintering for a period of almost a year.

Scientific hydrographical data of the Mozambican coast was obtained by the research done by the English admiralty under the command of Captain Owen published

²⁰⁴ See: Comandante Humberto Leitão, Op. cit., pp. 53, 104.

in 1832, the data obtained by researches and compiled as *The Africa Pilot* by Captain Horsey as well as by the research of Leote do Rêgo, a Portuguese officer, published in 1904 as “Guide book and sailing directions”. There Common features of these works with the old Portuguese *Roteiros*, though more detailed, are the general sailing directions, observations of winds, currents, tides, depths and hazards such as shoals and sandbanks but also the introduction of new aspects of navigation such as tidal ranges and more accurate position of hazards.

A combined reading of the *Roteiros* and the works of Horsey, Owen and Rêgo contribute to a better understanding of the Portuguese Asiatic shipping in Mozambican waters but also prove the difficulties in understanding why shipwrecks occurred during the historical time period studied in this thesis, the first quarter of the 17th century. The *Roteiros* are pilots written by experienced individuals that describe an experienced navigation. Therefore, the *Roteiro* does not apply for a long term observation of a specific geographical area for instance, the Northern Channel of the entry to the inner harbor of Mozambique Island. Although being a description by observation according to scientific methods of the mid 19th and early 20th century, neither the *Africa Pilot* by Horsey nor the Guide book by Rêgo can provide answers to specific questions of the Portuguese *Carreira* shipping as they were written in a time of mainly self-propelled vessels, the steamships. The naus and galleons were non-self-propelled vessels depending on natural conditions such as winds and currents. Hazards such as the shoals and sandbanks between the Primeiras Islands group and Mozambique Island and the Mozambique Island harbor with its characteristics itself, were dangers faced by the sailing ships of the 16th and 17th century, especially the bigger nau of four decks which had a deeper draught than the ones with only three decks but were easier to avoid by the later steamships.

Having studied the characteristics of the Mozambique Channel and the *Carreira da Índia* shipping it becomes clear that the *inner passage*, the route between the African mainland and the island of Madagascar was one of the most dangerous sections of the cape route. Following the data presented by Guinote, a total of 54 out of 219 known and

documented shipwrecks occurred in the Mozambique Channel between 1497 and 1650, accounting to a total of 24.7 percent²⁰⁵.

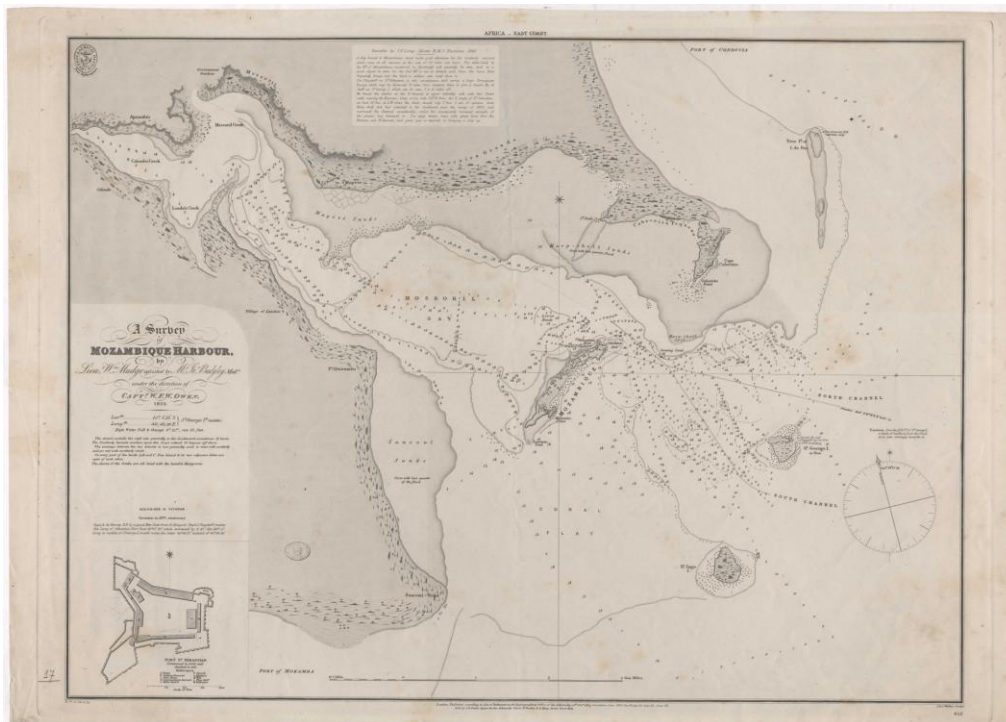


Figure 3: “Hydrographic plan of Mozambique Island”, 1823²⁰⁶

²⁰⁵ Eduardo Frutuoso, Paulo Guinote, António Lopes, *Naufrações e Outras Perdas da “Carreira da Índia”*: Séculos XVI e XVII, op. cit., p. 124.

²⁰⁶ See: “A Survey of Mozambique Harbor under the direction of Capt. W. F. W. Owen”, 1823 AHU, AHU_CARTi_064.D.509.

III.2 Underwater archaeology – Evidence of shipwrecks

Evidence of the hazards faced by the *Carreira* shipping in the Mozambique Channel, namely the remains of shipwrecks were discovered, documented, excavated and, in some cases, artefacts recovered by Arqueonautas Worldwide, Arqueologia Subaquática S. A., a private marine archaeology company which in partnership with Património Internacional S.A.R.L., a Mozambican state controlled company. In 1999, the Ministry of Culture of the Republic of Mozambique, granted the license for underwater archaeological activities in Mozambican waters, namely the province of Nampula covering the areas between the Lúrio river, situated in 13°30'S latitude, and Fogo island, situated in 17°14'S latitude, (North-South direction), the most southern of the Primeiras Islands group.

Based on data obtained by the underwater archaeological observations done until recently, a combined archaeological and historiographical analysis and observation of five shipwrecks of the *Carreira da Índia*, the 1608 *Nossa Senhora da Consolação* and the *São Francisco*, the 1622 *Santa Teresa de Jesus*, the *São Carlos* and the *São José* as well as one Dutch shipwreck, the 1622't *Hert*, aims to provide new information by using shipwrecks as sources for Maritime History.

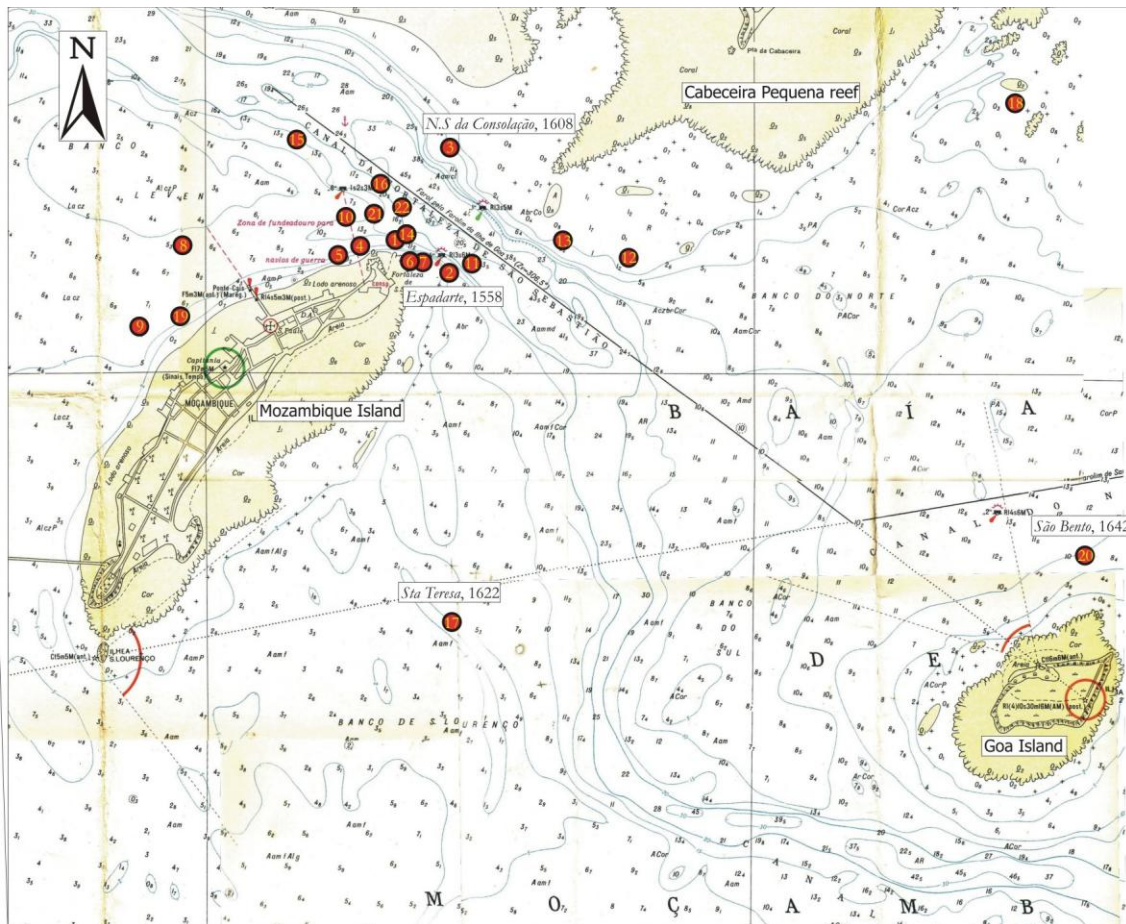


Figure 4: “General site plan of shipwrecks in the vicinities of Mozambique Island”²⁰⁷

²⁰⁷ See: “general site plan of all shipwrecks in the vicinities of Mozambique Island discovered and documented by Arqueonautas Worldwide, Arqueologia Subaquática S. A., archive of Arqueonautas Worldwide, Arqueologia Subaquática S. A.

III.3 1608 Naus *São Francisco* and

Nossa Senhora da Consolação

As observed in chapter II.1, the 1608 *São Francisco* was part of the first outward bound fleet of 1607, the *Nossa Senhora da Consolação*, a nau, was part of the second outward bound fleet of 1607 which arrived at Mozambique Island in September of the same year. Being too late for the continuation of the voyage towards India, the ships remained wintering at Mozambique Island together. The *São Francisco* hit a shoal in the vicinities of the chapel *Nossa Senhora do Baluarte*, situated at the northern end of Mozambique Island close to the *São Sebastião* Fortress. As she was declared not seaworthy, her main masts were cut and the cargo and her artillery taken out²⁰⁸. The remains of the ship were destroyed in a storm that hit the island in 1613.

During the course of several survey campaigns of Arqueonautas Worldwide (2001-2013), four wreck sites (IDM-001, IDM-006, IDM-007 and IDM-014) in the vicinities of the *Nossa Senhora de Baluarte* shoal have been surveyed and partially excavated²⁰⁹ but a more decisive rather than tentative identification was not possible due to the relative absence of sufficient cultural material, armament or wood structure through which one of the four shipwrecks could be identified as the *São Francisco*.

The situation of the nau *Nossa Senhora da Consolação* differs from the *São Francisco*. Unlike the prior shipwreck, the *Consolação* was lost due to an attempt of seizure during the course of the 1608 Dutch blockade and siege of Mozambique Island under the command of Pieter Willemsz. Verhoeff. Acknowledging that the first attempt had failed and that the ship remained stranded, the Portuguese set her on fire, impeding a successful second attempt; the Dutch only managed to seize some cargo.

²⁰⁸ See: T. W. Baxter, A. da Silva Rego (eds.), op. cit., pp. 440-443.

²⁰⁹ See: Alejandro Mirabal, *Interim Report of the Marine Archaeological Survey performed in Mozambique Island, from May to July 2001.*, pp. 6, 10; Idem, *Second Interim Report of the Marine Archaeological Survey performed in Ilha de Moçambique, from March to July 2004.*, pp. 9, f.; *Intermediate Report on Underwater Archaeological Excavation in Mogincual and Survey off the Island of Mozambique, from April to November 2007.*, pp. 31-34, 40

During the 2001 and following survey and excavation campaigns²¹⁰, a quite isolated wreck site was discovered, situated near Cabaceira Pequena reef at the North-Eastern part of the entry channel separating the African main land from Mozambique Island. The site, registered as IDM-003, the third shipwreck discovered in the vicinities of Mozambique Island (IDM), was excavated and the remains of the wood structure served for the study and reconstruction of the second Portuguese East Indiaman after the *Nossa Senhora dos Mártires* by Filipe Castro. The confirmation of traces of fire, the isolated position and the artefacts of cultural material²¹¹, the wreck site IDM-003 led to a tentative identification of the 1608 *Nossa Senhora da Consolação*. The tentative identification was supported by the comparison of the description of the merchandise encountered and taken by the Dutch, namely elephant tusks, olive jars and other goods and the artefacts that were excavated, documented and recovered from the site²¹².

²¹⁰ See: Alejandro Mirabal, *Interim Report of the Marine Archaeological Survey performed in Mozambique Island, from May to July 2001*, p. 8, f.; *Intermediate Report on the Underwater Archaeological Excavations off the Island of Mozambique and Mogincual, from April to November 2005.*, pp. 32-70; *Interim Report on Underwater Archaeological Excavations off the Island of Mozambique and Mogincual, from March to November 2006.*, pp. 21-53; *Complete list of artefacts recovered from the wreck sites IDM-003 and MOG-003 during the 2005 excavation season.*, pp. 1-4.

²¹¹ See: Alejandro Mirabal (ed.), *The Excavation of the Nossa Senhora da Consolação (1608)*, op. cit., pp. 104-193.

²¹² See: Idem, *ibidem*.

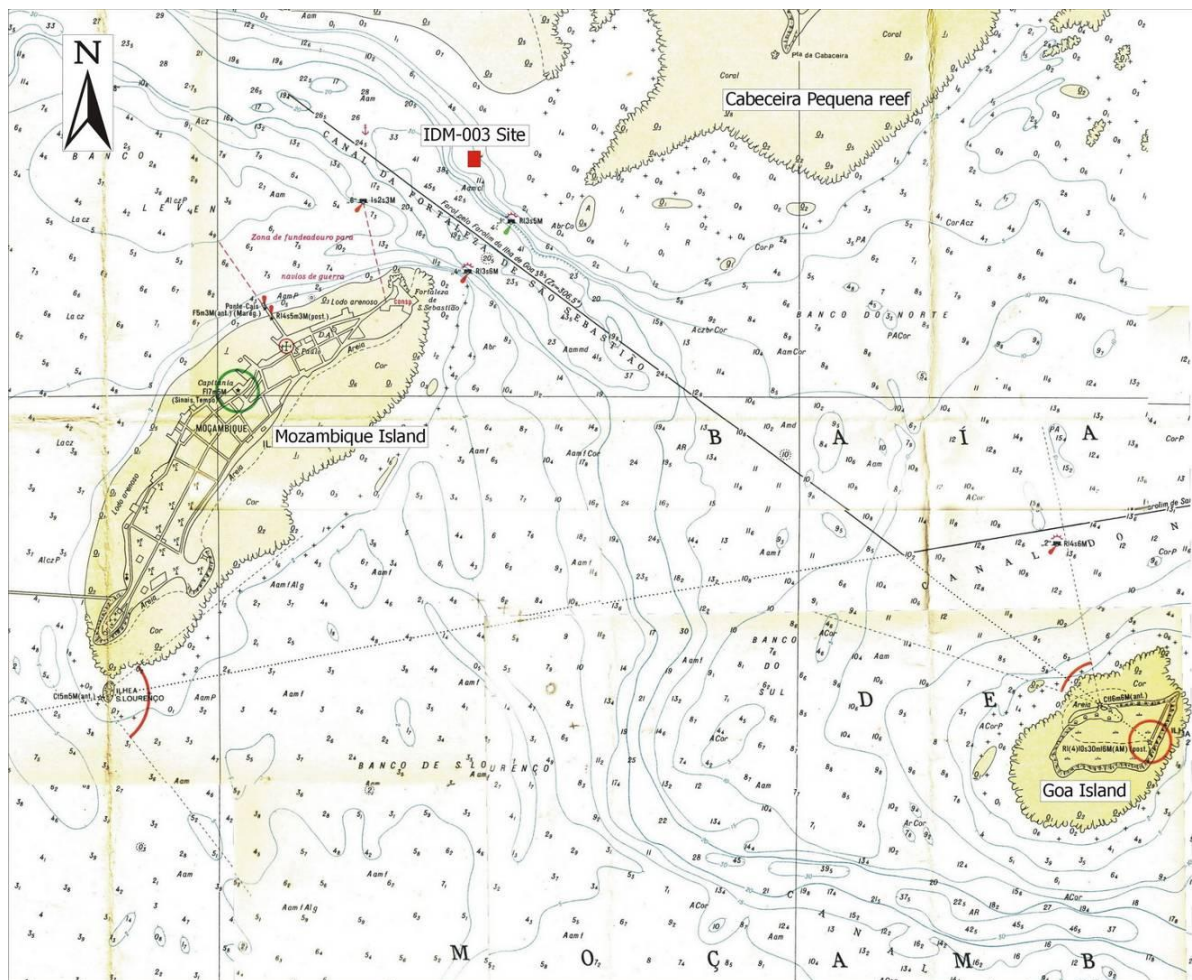


Figure 5: “Site plan of the wreck site IDM-003”²¹³

²¹³ See: “Site plan indicating the wreck site IDM-003”, archive of Arqueonautas Worldwide, Arqueologia Subaquática S. A..

III.4 1622 Nau *São José*

The nau *São José*, or also referred to as *São Joseph* in the historical documentation, was part of the 1622 Portuguese outward bound fleet under the command of the new appointed Vice-king D. Francisco da Gama²¹⁴. During the course of the attack by the second Anglo-Dutch *fleet of defense* under the command of Jacob Dedel in late June, the said ship was separated from the *Santa Teresa de Jesus*, *São Carlos* and the *São Salvador* given the fact that she was the last of the convoy²¹⁵. As the attack continued, the heavily destroyed *São José* drifted to the Mogincual shoals where she stranded. Concentrating their forces at the *São José*, the Anglo-Dutch fleet managed to take a certain number of prisoners, mainly orphans, and a certain amount of money declared by the Portuguese to be 18,000 *cruzados*, stored in nine cases²¹⁶ or 30,000 *cruzados* stored in 15 cases²¹⁷ and by the Anglo-Dutch forces to be approximately 68,000 *reales*²¹⁸ or 668,553 *reales of eight*²¹⁹, depending on the documentation. In a letter dated 23rd of July 1623, D. Maria Coutinho declared the salvage undertaken by the *enemies* as 680,000 *cruzados* of the king and other particulars²²⁰, most certainly a spelling mistake instead of 68.000 *cruzados*. In a letter to the king D. Filipe III, the Vice-king D. Francisco da Gama announced a new attempt to recover the artillery lost in the *São José*²²¹.

Resulting from the survey and excavation campaigns that took place between 2004 and 2007, the isolated wreck site MOG-003 (Mogincual-003) was discovered, documented and partially excavated at Infusse shoals²²², part of the group of the

²¹⁴ See: Chapter II.3 of the present thesis.

²¹⁵ See: Armando da Silva Saturnino Monteiro, op. cit., p. 308.

²¹⁶ See: A. da Silva Rego (ed.), *Documentos Remetidos da Índia ou Livro das Monções*, op. cit., vol. IX, p. 282.

²¹⁷ See: *Relação do que passamos na viagem depois que passamos a linha e encontramos os inimigos Ingleses, holandeses..*, Biblioteca Nacional de Portugal, Lisbon, códice 1540, fol. 128v.

²¹⁸ See: Sir William Foster, Idem, *ibidem..*

²¹⁹ See: Idem, p. 132.

²²⁰ See: A. da Silva Rego (introd.), *Documentação Ultramarina Portuguesa*, vol. 2, Lisbon, Centro de Estudos Históricos Ultramarinos, 1962, p. 504.

²²¹ See: A. da Silva Rego (ed.), *Documentos Remetidos da Índia*, op. cit., Vol. X, p. 160.

²²² See: Alejandro Mirabal, "Marine Archaeological Survey, Nampula Province, Republic of Mozambique, September to December 2004", *Third Interim Report*, pp. 6-9; *Intermediate Report on the Underwater Archaeological Excavations off the Island of Mozambique and Mogincual, from April to November 2005.*, pp. 5-31; *Interim Report on Underwater Archaeological Excavations off the Island of Mozambique and Mogincual, from March to November 2006.*, pp. 5-20; *Intermediate Report on*

Mogincual shoal²²³. Due to the cultural material discovered, mainly Spanish coins in *reales* from the historical time period of the Spanish rule in Portugal (1580-1640), along with cannons permitted the identification of the wreck site as to be of the *São José*. Until now, from a sole section of the wreck site, Arqueonautas recovered and documented a total amount of 23,211 coins in *reales*, a total value of 146,918 *reales*, estimated as 16,528 *cruzados* based on the calculation of the equivalence of 1 *reales de peso de a ocho* as 0.9 *cruzados*²²⁴)²²⁵ which, in comparison with the historiographical information seems to be in accordance with the declared loss of 18,000 *cruzados*²²⁶. Some of the documented coin clusters enabled an observation of the amount of coins per case which, compared with the historical documentation²²⁷ appears to be similar. Furthermore, there have been a total of four bronze and five iron cannons at the wreck site MOG-003 documented and recovered *in situ*²²⁸.

Underwater Archaeological Excavation in Mogincual and Survey off the Island of Mozambique, from April to November 2007., pp. 6-25; *Complete list of artefacts recovered from the wreck sites IDM-003 and MOG-003 during the 2005 excavation season.*, pp. 5-61.

²²³ Comandante Humberto Leitão, op. cit., p. 101.

²²⁴ See: James C. Boyajian, op. cit., p. XVII, 325.

²²⁵ See: Alejandro Mirabal, *Spanish Coins in Mozambican Waters – The Numismatic Collection of the São José (1622)*, op. cit., p. 24.

²²⁶ See note 202.

²²⁷ See: T. W. Baxter, A. da Silva Rego (ed.), *Documents...* vol IX, pp. 440-443.

²²⁸ See: Alejandro Mirabal, “*Marine Archaeological Survey, Nampula Province, Republic of Mozambique, September to December 2004*”, *Third Interim Report*, pp. 6, f.; *Intermediate Report on the Underwater Archaeological Excavations off the Island of Mozambique and Mogincual, from April to November 2005.*, pp. 5-21 (18-20); *Intermediate Report on Underwater Archaeological Excavation in Mogincual and Survey off the Island of Mozambique, from April to November 2007.*, pp. 10-25 (16-25).

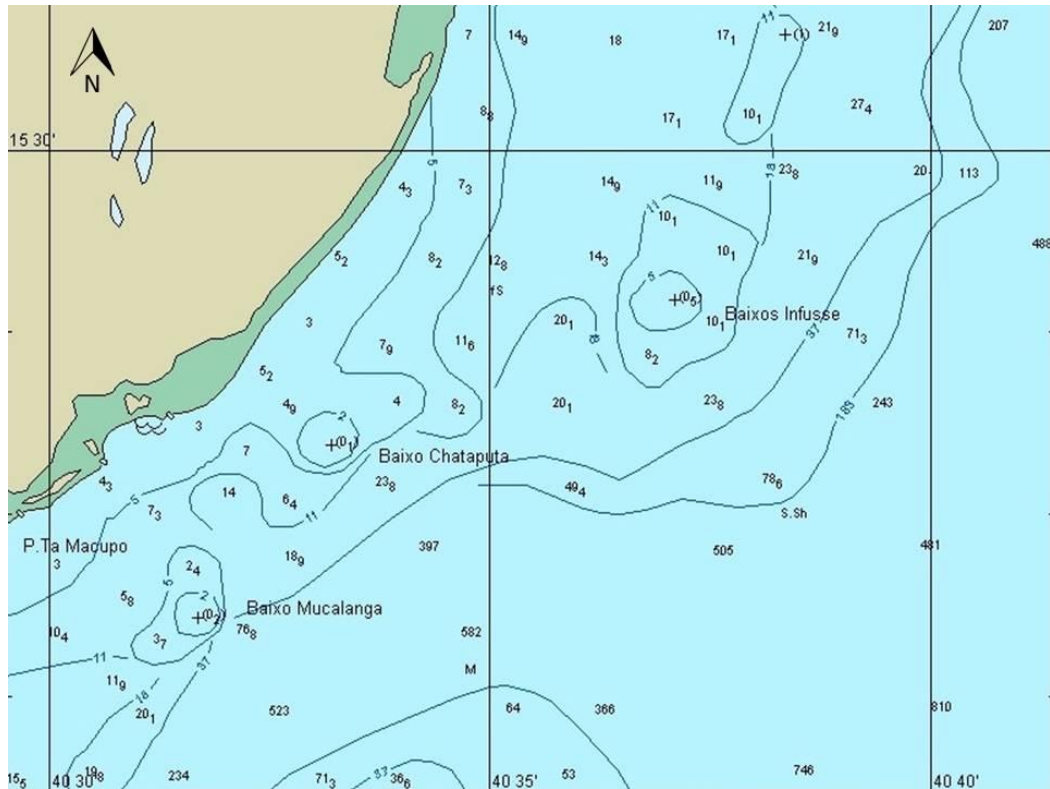


Figure 6: “underwater chart of the Infusse shoals”²²⁹

III.5 1622 Naus *Santa Teresa de Jesus* and *São Carlos*

Like the nau *São José*, the naus *Santa Teresa de Jesus* and *São Carlos* were part of the 1622 outward bound fleet engaged in the Anglo-Dutch attack in July 1622. Having confirmed the situation of the *São José*, the two ships sailed for Mozambique Island trying to escape the enemy’s attacks, where, while entering the harbor at night, the *Santa Teresa de Jesus* struck and stranded on a sandbank or shoal, known today as Banco de São Lourenço and situated between the two islets São Jorge and Santiago and Mozambique Island. Following in her company, the *São Carlos* struck a shoal situated

²²⁹ See: “underwater chart of the Infusse shoals”, archive of Arqueonautas Worldwide, Arqueologia Subaquática S. A.

in the vicinities of the *São Sebastião* fortress and remained stranded as well²³⁰. The Anglo-Dutch fleet concentrated their forces on the *São José* permitting the salvage attempts of the Portuguese that, at least, recovered part of the money and artillery of the *São Carlos* due to her favorable position in shallow waters close to the fortress²³¹. Attempts of a total salvage of the *Santa Teresa de Jesus* were complicated and hindered by the currents and tides which enabled a salvage of some part of the king's money and of the particulars stored on the upper decks but part of the cargo on the lower decks was lost²³². However, the Vice-king D. Francisco da Gama announced the successful salvage of 29 cannons or *pieces of artillery* of the two naus, the *Santa Teresa de Jesus* and the *São Carlos*²³³. Both ships were set on fire to avoid salvage attempts by the Anglo-Dutch fleet of defense.

Comparing the historiographical descriptions and documentation regarding the losses of the *Santa Teresa de Jesus* and the *São Carlos* with information obtained by the underwater archaeological survey of Arqueonautas Worldwide, an isolated wreck site, registered as IDM-017²³⁴, was discovered in 2004. Situated in the area of the São Lourenço bank, the shipwreck was tentatively identified as the 1622 *Santa Teresa de Jesus* which assumption was supported by a comparison of the recovered and documented artefacts and the historiographical description. Likewise, the situation of the 1608 nau *São Francisco*, the wreck site of the *São Carlos*, probably IDM-014²³⁵, cannot be identified with certainty due to the interference of cultural material in the possible area in the vicinities of the *São Sebastião* fortress.

²³⁰ See: *Relação do que passamos na viagem depois que passamos a linha e encontramos os inimigos Ingleses, holandeses...*, op. cit., fol. 128v.

²³¹ See: Idem, *ibidem*.

²³² See: Idem, *ibidem*.

²³³ ²³³ See: A. da Silva Rego (ed.), *Documentos Remetidos da Índia*, op. cit., Vol. X, p. 159.

²³⁴ See: Alejandro Mirabal, *Second Interim Report of the Marine Archaeological Survey performed in Ilha de Moçambique, from March to July 2004*, pp. 10, f; *Intermediate Report on the Underwater Archaeological Excavations off the Island of Mozambique and Mogincual, from April to November 2005.*, pp. 71-74;

²³⁵ See: Alejandro Mirabal, *Second Interim Report of the Marine Archaeological Survey performed in Ilha de Moçambique, from March to July 2004*, p. 8.

III.6 1622 Dutch Jacht 't Hert

Soon after the second Anglo-Dutch fleet of defense arrived in Mozambican waters, the joint forces encountered a small Portuguese ship, *São Pedro* that after being captured in the area of 14,5°S Lat., was burnt. As a result of the incident, the Dutch jacht 't Hert of 280 tons²³⁶ was laid up, her cargo taken off and the ship ultimately lost upon the hard ground in the bay close to where the *São Pedro* was captured²³⁷.

During the survey of 2004 campaign, an isolated wreck site documented as NAC-002 (Nacala, second documented wreck in the same area) was discovered at Quissimajulo Bay situated in 14°32'S latitude²³⁸. After studying the documented remains of the wood structure as well as the cultural material, prominently brick stones, an unusual cargo for Portuguese East Indiamen, along with the isolated position where no Portuguese outward bound or homeward bound shipwreck is documented, Arqueonautas concluded the tentative identification of the wreck site NAC-002 as most likely to be the 1622 't Hert²³⁹.

²³⁶ See: R. Bruijn, F. S. Gaastra, I. Schöffner (eds.), op. cit., vol. II, pp. 40, f.

²³⁷ See: The portuguese historiography indicates the the *São Pedro* incident as to have occurred in the vicinities of the Angoche islands group: André Murteira, op. cit., p. 180; Alfredo Botelho de Sousa, op. cit., vol. III, p. 190, f. The Dutch and English historiography indicates the area of the seizure of the *São Pedro* and ultimately the loss of the *Hert* further north: N. Mac Leod, op. cit., 276; Sir William Foster, op. cit. p. 2.

²³⁸ Alejandro Mirabal, "Marine Archaeological Survey, Nampula Province, Republic of Mozambique, September to December 2004", *Third Interim Report*, p. 10, f.; Comandante Humberto Leitão, op. cit., p. 103.

²³⁹ See: Idem, *ibidem*; Alejandro Mirabal, *Monitoring Report on the present condition of the NAC-002 wreck site at Quissimajulo Bay. (April 2012)*.

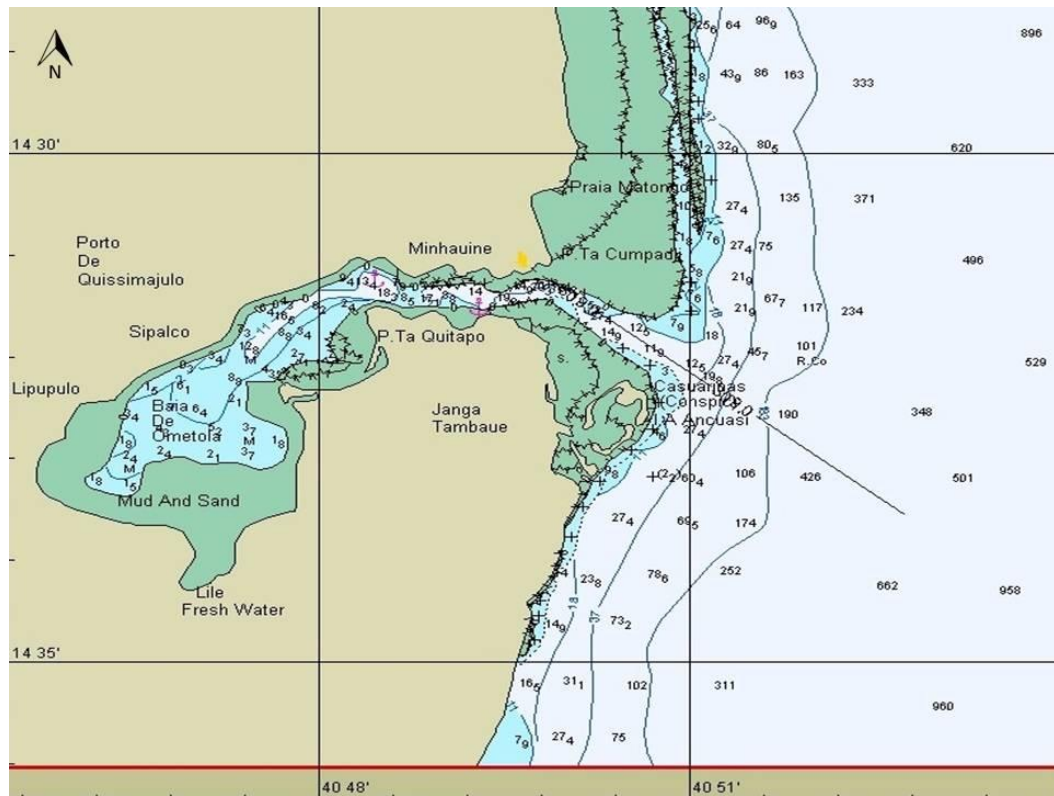


Figure 7: “underwater chart of the Quissimajulo Bay”²⁴⁰

III.7 Observation

The critical analysis and introduction of the data obtained by the underwater archaeological survey and excavation campaigns by Arqueonautas Worldwide, Arqueologia Subaquática S.A. permitted a comparison of information from historical documentation and international historiography by which places of losses were confirmed, such as the case studies of the 1608 *Nossa Senhora da Consolação*, the 1622 *São Jose* and the *Santa Teresa de Jesus*. Also, new information, especially concerning the case study of the Dutch 1622 *'t Hert*, is added. Regarding the case studies of the 1608 *São Francisco* and 1622 *São Carlos*, a definite attribution of a discovered wreck

²⁴⁰ See : “underwater chart of the vicinities of Quissimajulo Bay”, archive of Arqueonautas Worldwide, Arqueologia Subaquática S. A..

site to an historical shipwreck is not possible due to the disturbance of the debris field discovered and documented in the vicinities of the shoals surrounding the *São Sebastião* fortress at Mozambique Island.

Using the method of verification of artefacts and cultural material discovered, documented and recovered from historical shipwrecks by comparing with information obtained by historical research, both History and Underwater Archaeology as distinct human sciences serve the purpose of gaining knowledge derived from shipwrecks, in the case of the present study of the Portuguese *Carreira da Índia* of the early 17th century.

IV Naus of the *Carreira da Índia* during the first half of the 17th century

IV.1 Shipbuilding theory and reconstruction based on shipwrecks

During the last three decades, a series of profound investigations on Iberian shipbuilding resulted in the analyses of shipbuilding treaties and the theory of shipbuilding, such as the galleons and naus of the 16th and 17th century. the theses and articles on Portuguese shipbuilding such as “Os Navios do Mar Oceano” by Francisco Contente Domingues, “The *Nau* of the *Livro Nautico*: The Textural Excavation of a Portuguese Indiaman” by Alex Hazlett, “O Livro da fábrica das naos de Fernando Oliveira: Princípios e Procedimentos da Construção naval” by Carlos Manuel Montalvão de Sousa, or “Os Galeões da Coroa de Portugal durante o period Filipino: Influências e Características” by Augusto António Alves Salgado are just some examples. The excavation and analysis of the remains of the wood structure of the nau *Nossa Senhora dos Mártires* that sunk in 1606 at *São Julião de Barra* in the vicinities of the mouth of the Tagus river, near Lisbon, Portugal, initiated a combined underwater archeological and historiographical approach for the reconstruction of Portuguese naus (or carracks), namely under Filipe Castro. Data obtained by the archaeological excavation, by then also enabled by the development of electronic devices during the 1990s, permitted the virtual reconstruction of Portuguese ships of which, the *Nossa Senhora dos Mártires* was the first.

Also, the comparison of data obtained by analyzing the historical documentation regarding shipbuilding processes, such as measurement units used with the underwater archaeological evidence, was a new approach confirming the knowledge at that time.

The discovery of the remains of the *Nossa Senhora da Consolação*, a Portuguese nau which was lost near the *São Sebastião* fortress at Mozambique Island in 1608 and

the subsequent reconstruction of the hull structure based on the model of the *Nossa Senhora dos Mártires* permitted an observation of Portuguese shipbuilding of the same type of ship, a nau, of the same time period, the beginning of the 17th century, as both ships were either lost during their homeward or outward bound voyage within a two years difference.

Still, the statement of Alex Hazlett, PhD affirming that there is less knowledge on Portuguese shipbuilding compared with the Spanish²⁴¹ has yet to be confirmed.

As observed in chapter I.4, the Portuguese naus, like the Dutch *retourshepen*, the square stern ships or later *Fluyts*, were armed merchantmen.

Portuguese naus of the early 17th century were three masted ships of an average total length of 40m, a keel length of approximately 27.5m and a beam up to 12m resulting in a length to beam proportion of almost 3/1 and a depth of the hold of circa 8.8m²⁴². Its three main masts were equipped with two square sails on each, the foremast and the mainmast, and a lateen sail on the mizzenmast. An additional square sail, the spritsail, was set in front of the foremast²⁴³.

Based on the principles and tradition of *carvel-built* or *skeleton-first* ships, the process of constructing a nau of 18 rumos keel length which was mainly used during the early 17th century, was initiated by the laying of the keel followed by the erection of the stern, the implementation of the masts and rudder and the prow²⁴⁴. Continued by the process of setting the U-shaped skeleton of the hull structure, the planks were set in a continuous and joint form on the outer side of the skeleton, a process also known as *carvel-planking*²⁴⁵. In comparison with the Portuguese and, in general, Iberian shipbuilding methods, Dutch ships were constructed by using the *shell-first* technology and clinker-planking method in which the construction of the frame precedes the setting

²⁴¹ See: Alex Hazlett, Idem, *ibidem*.

²⁴² Filipe Castro, "The Pepper Wreck, an early 17th-century Portuguese Indiaman at the mouth of the Tagus River, Portugal", in *The International Journal of Nautical Archaeology*, [s.n.], [s.l.], 2003, vol. 32.1, p. 22; Alejandro Mirabal, *The Excavation of the Nossa Senhora da Consolação (1608)*, op. cit., p. 92.

²⁴³ See: Francisco Contente Domingues, *Os Navios do Mar Oceano – Teoria e impiria na arquitectura naval portuguesa dos séculos XVI e XVII*, op. cit, p. 252; Filipe Castro, "Rigging the Pepper Wreck, Part2-Sails" in *The International Journal of Nautical Archaeology*, ed. Blackwell Publishing Ltd., Malden, Oxford, 2009, vol. 38.1, p. 113.

²⁴⁴ See: Francisco Contente Domingues, *Os Navios do Mar Oceano – Teoria e impiria na arquitectura naval portuguesa dos séculos XVI e XVII*, op. cit, pp. 228-230.

²⁴⁵ See: Idem, pp. 231-234.

of the planks²⁴⁶, unlike the Portuguese, set in an overlapping form, the clinker-planking. As the planks of a Portuguese ship were a structural element of the hull, the same were of a more reinforcing nature for Dutch vessels²⁴⁷.

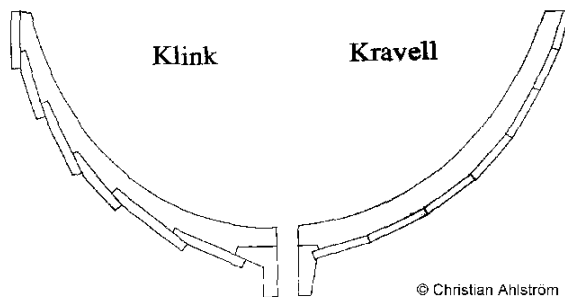


Figure 8: Scheme of clinker-planking and carvel-planking²⁴⁸

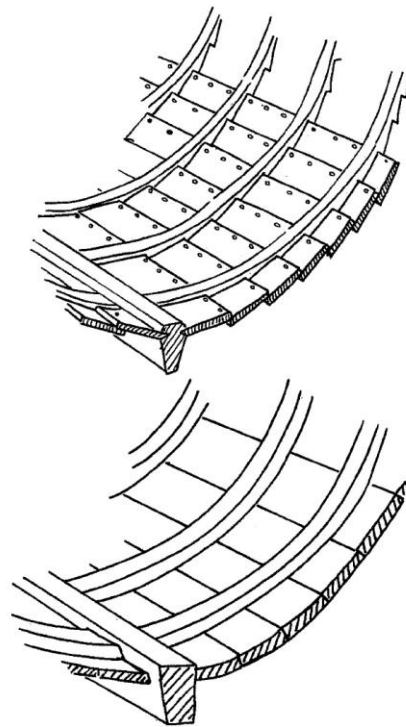


Figure 9: carvel-planking of a Portuguese Nau²⁴⁹

As shown in Table 4, Portuguese shipbuilding measurements during the 16th and 17th century were indicated in *palmos*, *palmos de goa*, or *rumos* and not calculated in absolute values by the norms of the metric system, introduced in France in 1799²⁵⁰.

²⁴⁶ See: Idem, p. 231.

²⁴⁷ See: Idem, *ibidem*.

²⁴⁸ See: Christian Ahlström, *Looking for Leads: Shipwrecks of the past revealed by contemporary documents and archaeological record*, Helsinki, The Finnish Academy of Science and Letters, Humaniora Series, vol. 284, 1997, p. 91.

²⁴⁹ See: Francisco Contente Domingues, *Os Navios do Mar Oceano – Teoria e impiria na arquitetura naval portuguesa dos séculos XVI e XVII*, op. cit, p. 232.

²⁵⁰ See: Francisco Contente Domingues, “O rigor da medida: Unidades de medida linear e de arqueio da construção naval ibérica nos inícios do século XVII”, in *Rumos e Escrita da História – Estudos em*

Unit	16 th /17 th century equivalent	Metric equivalent
Palmo de vara	1/7 of a rumo	220mm
Palmo de goa	1/6 of a rumo	256.7mm
Vara	5 palmos de vara	1.10m
Goa	3 palmos de goa	770mm
Rumo	2 goas, 6 palmos de goa,	
	or 7 palmos de goa	27.5mm
Pelegada comum	1/8 of a palmo de vara	27.5mm
Pelegada de goa	1 palmo de goa, 1 palmo de vara	36.7mm

Table 2: “Measurement units used in Portuguese shipbuilding during the 17th century”²⁵¹

Observing the evolution of the naus during the late 16th and early 17th century and comparing with the naus of the earlier Portuguese navigation with a capacity of circa 500t, we can see a tendency of volume augmentation towards 700t and more, by elongation and enlargement²⁵² as well as experimentation of ships with four decks instead of the commonly built three deck naus²⁵³. The analysis of historical documentation on shipbuilding demonstrates the absence of volume augmentation or capacity by using an additional deck²⁵⁴ due to the fact that the three deck naus were longer, of deeper draught and of higher distance between the decks themselves²⁵⁵. the use of naus with four decks and the enlargement of the ones with three, caused lesser maneuverability (passage of hazards, such as sandbanks or shoals, as well as suitable wharves).²⁵⁶ In times of naval warfare and economical changes, these were additional factors that explain the decline of the Portuguese Cape route shipping indicated by the personal experience of the Vice-king D. Francisco da Gama who, in 1622, had fought against the Anglo-Dutch *fleet of defense* in Mozambican waters²⁵⁷. The capacity of the ships, either galleons or naus, indicated in the historical documentation, refers to the lower decks, excluding the first deck or weather deck.

Homenagem a A. A. de Marques de Almeida, Maria de Fátima Reis (coord.), Lisbon, Edições Colibri, 2007, p. 281.

²⁵¹ See: Filipe Castro, op. cit., p. 10.

²⁵² See: Francisco Contento Domingues, *Os Navios do Mar Oceano – Teoria e impiria na arquitectura naval portuguesa dos séculos XVI e XVII*, op. cit., pp. 247-252.

²⁵³ See: Idem, *ibidem*.

²⁵⁴ See: AHU_CU_Índia, cx. 11, doc. 123 (18.05.1623); Francisco Contento Domingues, op. cit., p. 249, f.

²⁵⁵ See: AHU_CU_Índia, cx. 11, doc. 123 (18.05.1623).

²⁵⁶ See: Francisco Contento Domingues, op. cit., p. 250, f.; Christiano Barcellos, “Construções de Naus em Lisboa e Goa no Começo do Século XVII”, in *Boletim da Sociedade de Geografia de Lisboa*, Lisbon, Imprensa Nacional, 17ª série, N° 1, 1899, p. 35.

²⁵⁷ See: A. da Silva Rego (ed.), op. cit., vol. X, pp. 126, 228.

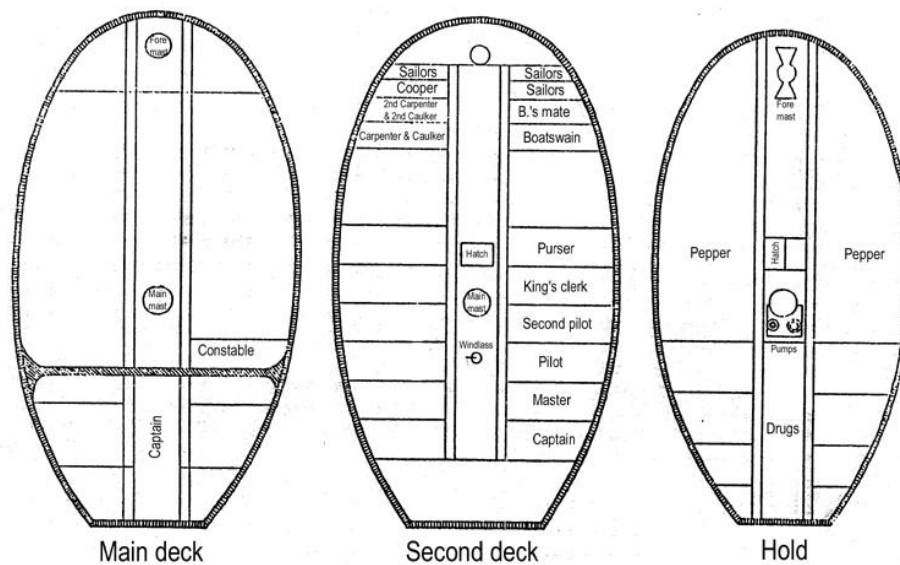


Figure 10: “Scheme of the organization of space per deck of a Portuguese nau”²⁵⁸

Armament and artillery were part of the outfitting of the naus but did not consist of a fixed assigned quantity depending on the capacity or size of the ship. Differing by the type of artillery, the naus were mainly equipped with iron cannons, the galleons mainly with bronze cannons²⁵⁹. At the end of an outward bound or homeward bound voyage, the ships were disarmed and the cannons and other armament stored in the royal storage facilities²⁶⁰. the outfitting of ships, cannons and other pieces of artillery did not always originate from ships of prior fleets but also from sunken ships like the case of the 1622 *Santa Teresa de Jesus* and *São Carlos* off Mozambique²⁶¹ or vessels that after having been stranded and declared unseaworthy but were also acquired from foreign ships, mainly at the Tagus and Sado river in Portugal²⁶². Due to the absence of detailed descriptions of the ships armament, either of the naus or galleons, given by accounts of the late 16th and early 17th century or historical documentation, a profound

²⁵⁸ See: Luís de Figueiredo Falcão, *Livro em que se contém Toda a Fazenda e Real Património dos Reinos de Portugal, Índia e Ilhas Adjacentes e outras Particularidades, ordenado por Luiz de Figueiredo Falcão, secretario de el rei Filipe II (1607)*, Lisbon, Imprensa Nacional, 1859, p. 200^a.

²⁵⁹ See: Augusto António Alves Salgado, *Portugal e o Atlântico: Organização militar e acções navais durante o período Filipino (1580-1640)*, PhD Thesis, Faculdade de Letras da Universidade de Lisboa, 2009, p. 237.

²⁶⁰ See: Note 223.

²⁶¹ See: Augusto António Alves Salgado, op. cit., pp. 238, f

²⁶² See: Idem, *ibidem*.

analysis of the typology of the cannons and the projectiles used on board of Portuguese ships still remains an object of research but, generally speaking, ships were equipped with several types of smaller, medium and larger scale and size cannons based on carriages of two or four wheels using several types of projectiles depending on the purpose²⁶³. Observing the armament of Portuguese ships during the historical time period of the late 16th and early 17th century there are two affirmations which can be drawn from the historiography: first, the late phase of continuous use of types of artillery known since the early decades of the century²⁶⁴, the *Berças*, a small piece of artillery equipped with a chamber able to project a projectile of 3 pounds²⁶⁵, the *Camelos*, an old piece of artillery of small range²⁶⁶ and the *Pedreiros*, mortars with large caliber which projected stone projectiles²⁶⁷; second, the introduction of the generic term “peça” meaning piece, the designations if either from the city, “da cidade” or from the Kingdom, “do reino” and the classification by weight in pounds²⁶⁸

²⁶³ See: José V. Pissarra, “Armamento Naval”, in Francisco Contente Domingues (ed.), *História da Marinha Portuguesa. Navios, Marinheiros e Arte de Navegar 1500-1661*, Lisbon, Academia de Marinha, 2012, pp. 137-177 (174-177); Augusto António Alves Salgado, “Portuguese galleon’s armament at the end of the sixteenth century”, in Inácio Guerreiro, Francisco Contente Domingues (eds.), *Fernando Oliveira e o Seu Tempo. Humanismo e Arte de Navegar no Renascimento Europeio (1450-1650) / Fernando Oliveira and his Era. Humanism and the Art of Navigation in Renaissance Europe (1450-1650)*, Cascais, Patrimonia, 2000, pp. 277-292.

²⁶⁴ See: José V. Pissarra, op. cit., p. 174.

²⁶⁵ See: “Berça”, in Comandante Humberto Leitão, Comandante José Vicente Lopes, *Dicionário da Linguagem de Marinha Antiga e Actual*, 2nd edition, Lisbon, Centro de Estudos Históricos Ultramarinos da Junta de Investigações Científicas do Ultramar, 1974, p. 93.

²⁶⁶ See: “Camelo”, in Idem, p. 130.

²⁶⁷ See: “Pedreiro”, in Idem, p. 404.

²⁶⁸ See: José V. Pissarra, op. cit., p. 175.

IV.2 1606 *Nossa Senhora dos Mártires*

in 1606 the *Nossa Senhora dos Mártires*, sailing on her homeward bound voyage to the metropolis of the Portuguese Empire, Lisbon, in company of the *Nossa Senhora da Salvação* or *Salvação* was lost in the vicinities of the sandbanks near São Julião de Barra at the mouth of the Tagus river, Lisbon area, Portugal²⁶⁹. Registered and catalogued as SJB2, the second area consisting of cultural material and remains of a hull structure in the vicinities of São Julião de Barra²⁷⁰, the same were later identified as to be most probably of the 1606 *Nossa Senhora dos Mártires*²⁷¹ based on historical documentation. Due to the fact that the remains of the wood structure were covered in a layer of pepper corns, the wreck site became also known as the Pepper Wreck.

The methodology applied was the division of the area of excavation into standardized grids, for the documentation *in situ*, the place of discovery before recovery, similar to terrestrial archaeology²⁷² followed by the controlled destruction of the archaeological site for scientific purposes. This allowed obtaining first data regarding the measurements of parts of the hull structure, later confirmed by recovered parts²⁷³.

Based on the documented area of the wood structure remains, namely “the keel, an apron, eleven frames and twenty-six strakes of planking”²⁷⁴, approximately corresponding to “2/5 of the estimated original length of the keel and approximately the width of the flat of the floors, plus 1/3 of the extension of the main deck”²⁷⁵, a virtual model of the hull structure was created using the data obtained from the archaeological survey and excavation campaigns compared with and applied to historical documentation of shipbuilding processes and construction plans of the historic time

²⁶⁹ See: Luís Filipe Monteiro Vieira de Castro, *The Pepper Wreck: A Portuguese Indiaman at the mouth of the Tagus river*, op. cit., pp. 96-98; Idem, pp. 100-104.

²⁷⁰ See: Idem, p. 117; pp. 127-136.

²⁷¹ See: Idem, *ibidem*.

²⁷² See: “Underwater Archaeology”, in Deborah M. Pearsall (ed.), *Encyclopedia of Archaeology*, Amsterdam, Elsevier, 2008, Vol. III., p. 2162, ff; “underwater archaeology”, in Ruth D. Whitehouse (ed.), *The Macmillan Dictionary of Archaeology*, London, Macmillan Press, 1983, pp. 527, f.

²⁷³ See: Luís Filipe Monteiro Vieira de Castro, *The Pepper Wreck: A Portuguese Indiaman at the mouth of the Tagus river*, op. cit., pp. 125, f.

²⁷⁴ See: Idem, p. 139.

²⁷⁵ See: Idem, *ibidem*.

period, especially the plan of a nau by Manuel Fernandes and Fernando Oliveira “Livro da fabrica das naus”²⁷⁶.

The model of the *Nossa Senhora dos Mártires*, or the Pepper Wreck, is based on a plan of Manuel Fernandes indicating a three deck nau of 18 rumos keel length but neither the historical documentation nor the archaeological remains were able to clarify the question whether the *Mártires* was a three of four deck nau.

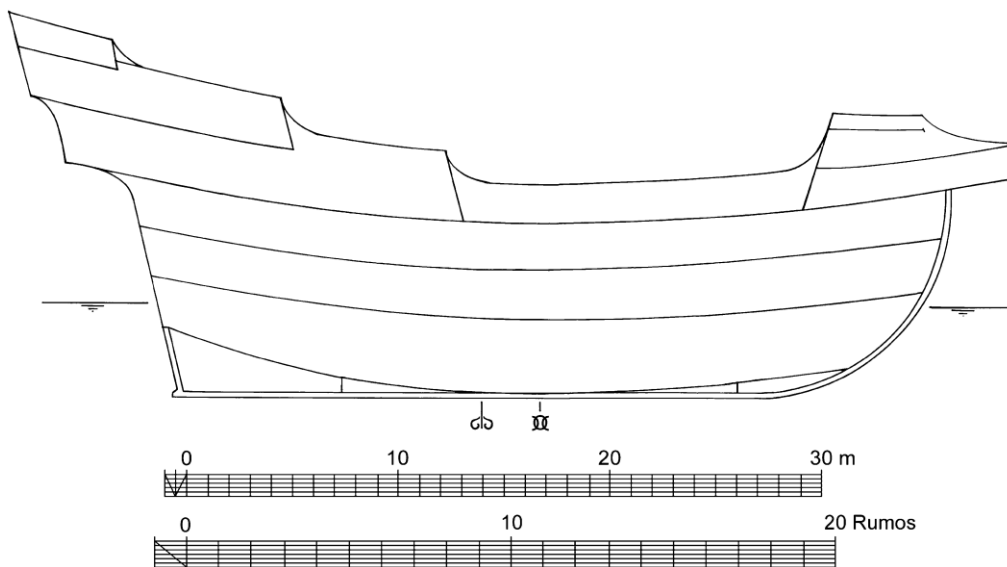


Figure 11: “The Pepper Wreck reconstructed after Fernando Oliveira’s *Livro da fábrica das naus*”²⁷⁷

Continued research by the method of application of historical information and the archaeological data obtained from the *Nossa Senhora dos Mártires* resulted in the reconstruction of a possible calculation of the outfitting process.²⁷⁸ A possible sail plan of a Portuguese nau was based on data obtained by the archaeological excavation of the

²⁷⁶ See: Idem, pp. 186-194; Manuel Fernandes, *Livro de Traças de Carpintaria*, Lisbon, Academia de Marinha, 1989 (facsimilated edition of the edition of 1616), fol. 71 v.

²⁷⁷ See: Filipe Castro, “Rigging the Pepper Wreck, Part1-Masts and Yards” in *The International Journal of Nautical Archaeology*, ed. Blackwell Publishing Ltd., Malden, Oxford, 2005, vol.. 34.1, p. 113.

²⁷⁸ See: Filipe Castro, Nuno Fonseca, Audrey Wells, “Outfitting the pepper Wreck”, in *Historical Archaeology*, [s.l.], [s.n.], 2010, vol.. 44(2), 2010, pp. 14-34.

Swedish warship *Wasa* which sunk in Stockholm harbor 1628²⁷⁹ due to the fact that no sails of a Portuguese Indiaman but some sails of the *Wasa* had also survived²⁸⁰.

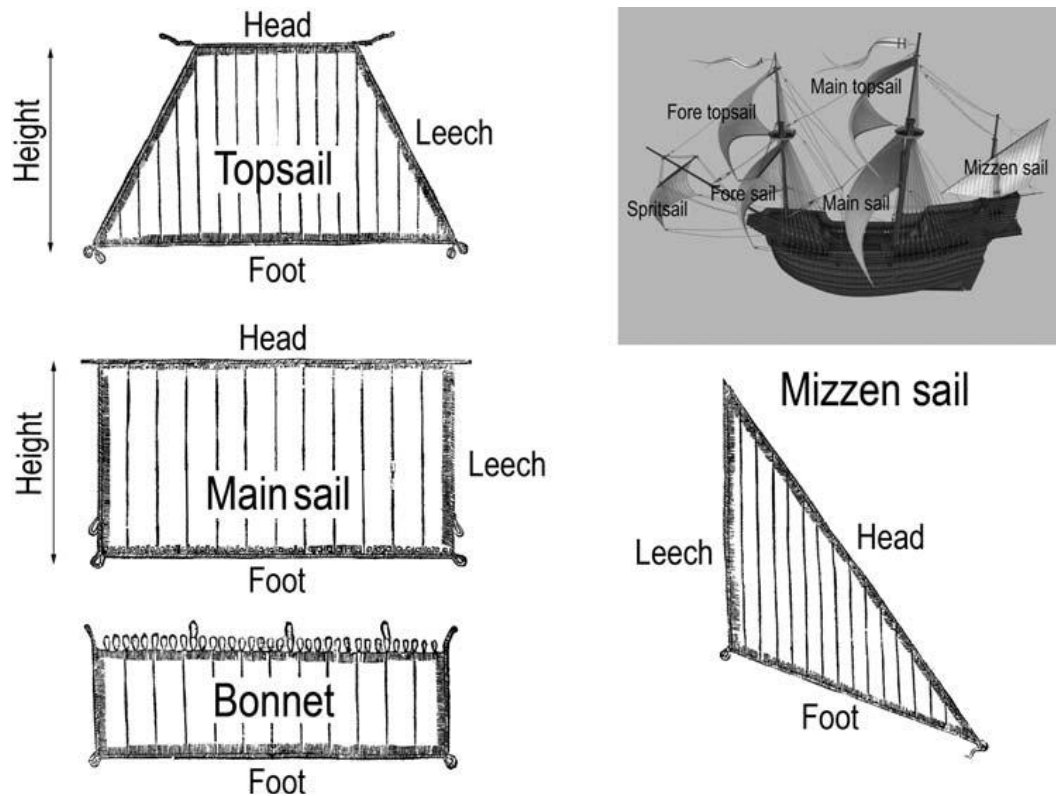


Figure 12: “The sails of the Pepper Wreck”²⁸¹

Observing the amount and weight of the ballast stones of the *Nossa Senhora dos Mártires*, the excavation of the remains did not permit an archaeological affirmation of the same due to the characteristics of the wreck site²⁸². “Outfitting the Pepper Wreck”, a prolonged investigation of the knowledge of the Pepper Wreck revealed an estimated minimum weight of the ballast for a safe journey as to be circa 175t²⁸³

²⁷⁹ See: Sven Bengtsson, “The Sails of the *Wasa*”, in *The International Journal of Nautical Archaeology and Underwater Exploration*, [s.l.], [s.n.], 1975, vol. 4.1, pp. 27-41.

²⁸⁰ Filipe Castro, “Rigging the Pepper Wreck, Part2-Sails” in *The International Journal of Nautical Archaeology*, ed. Blackwell Publishing Ltd., Malden, Oxford, 2009, vol.. 38.1, pp. 105-115.

²⁸¹ See: Filipe Castro, “Rigging the Pepper Wreck, Part2-Sails” in *The International Journal of Nautical Archaeology*, ed. Blackwell Publishing Ltd., Malden, Oxford, 2009, vol.. 38.1, p. 111.

²⁸² See: Luís Filipe Monteiro Vieira de Castro, *The Pepper Wreck: A Portuguese Indiaman at the mouth of the Tagus river*, op. cit., pp. 183-185.

²⁸³ See: Filipe Castro, Nuno Fonseca, Audrey Wells, op. cit., p. 18.

In the chapter “Armament” of the same study, the authors refer to the fact of the difficulties in identifying and classifying the artillery used on board of Portuguese naus. Referring to the outfitting of naus of 600 tons of 1590, the study presents a general but explaining overview of various pieces of artillery used, such as the *Berças*, *Falcões* and *Pedreiros*²⁸⁴

IV.3 1608 *Nossa Senhora da Consolação*

As part of the second Portuguese outward bound fleet of 1607 under the command of D. João Correia de Sousa, the *Nossa Senhora da Consolação* was accompanied by three other ships, the nau *Nossa Senhora do Loreto* and the galleons *São Felipe e Santiago* and the *Santo André*. Whilst the *Nossa Senhora do Loreto* and the *São Felipe e Santiago* continued their voyage passing the Indian Ocean without passing Mozambique Island, the *Consolação* and *Santo André* entered the harbor in late August of the same year. as it was already too late for a continuous voyage, they were forced to winter at the said place. The *Consolação* was set on fire by the Portuguese to avoid a second attempt of seizure by the Dutch who were attacking the *São Sebastião* fortress.

By using the principles and methodology of underwater archaeology, the wreck site IDM-003 was surveyed and excavated by Arqueonautas Worldwide, Arqueologia Subaquática S.A. during the course of several campaigns starting on 2000²⁸⁵. Divided into several grids, the wood structure remains and artefacts were, such as with *Nossa Senhora dos Mártires*, documented, registered but only the cultural material was

²⁸⁴ See: Idem, pp. 22, f.

²⁸⁵ See: Chapter III.3

recovered; the remains of the hull structure were examined and measured *in situ* and not recovered²⁸⁶.

Based on the documented area of the wood structure remains, believed to be “the complete part of the starboard half of the flat amidships”²⁸⁷, “36 floors between tail frames (18 each of the master frame) and 20.55m of the keel”²⁸⁸, the data obtained by underwater archaeological survey was compared with and applied to historical documentation using information given by the results of the reconstruction of the *Nossa Senhora dos Mártires*.

The model shown in Figure 13 representing the wood structure remains of the *Consolação* was projected on a plan of a three deck nau by Fernando Oliveira but, as in the case of the *Mártires* it was not possible to determine whether the *Consolação* was a three deck or four deck nau.

Removing the ballast stones and measuring the weight of the bags used resulted in an approximate total weight of ballast of 250t²⁸⁹. Also, the remains of the armament and artillery of the *Consolação* allowed an observation and comparison with the affirmation as observed in Chapter IV.1. Nevertheless, it must be taken in consideration that there has been human intervention during the past due to the low depth of the wreck site permitting salvage by the Portuguese stationed at Mozambique Island at the time of the loss. The iron cannons of the *Consolação*, four in total, are of a maximum total length of 2.44m and 0.35m diameter²⁹⁰. The excavation of the wreck site also revealed two different types of cannon balls, the first made of iron with a diameter of 0.07m and a weight of two kg, the second made of stone with a spherical shape and a diameter between 0.15m and 0.25m²⁹¹ as well as lead shots of 35g weight and 18mm diameter²⁹².

²⁸⁶ See: Alejandro Mirabal (ed.), *The Excavation of the Nossa Senhora da Consolação (1608)*, op. cit., p. 92.

²⁸⁷ See: Idem, p. 91.

²⁸⁸ See: Idem, *ibidem*.

²⁸⁹ See: Idem, p. 62.

²⁹⁰ See: Idem, p. 34, f.

²⁹¹ See: Idem, p. 35.

²⁹² See: Idem, *ibidem*.



Figure 13: “*Nossa Senhora da Consolação* reconstructed after Manuel Fernandes *Livro de Traças de Carpintaria*”²⁹³

IV.3 Observations

National and international investigations and research of the past three decades have produced new knowledge regarding methodology of Portuguese shipbuilding. Regarding the theoretical part, the publications, the analyses of historic shipbuilding treaties such as Fernando Oliveira and Manuel Fernandes allowed a new understanding of measurement units and construction methods used. Probably without knowing, the same were basis for a new approach of understanding how ships, especially the naus, were built in the late 16th and early 17th century: the comparison of data obtained by underwater archaeological survey and excavation campaigns and the application of the same in virtual ship models.

While using different mechanisms surveying and excavating the wreck sites SJB2, believed to be the 1606 *Nossa Senhora dos Mártires*, also known as the Pepper

²⁹³ See: Alejandro Mirabal, *Excavation of the Nossa Senhora da Consolação (1608)*, [s.l.], Arqueonautas Publications, 2013, p. 93.

Wreck in the vicinities of São Julião de Barra, Lisbon area, Portugal, and IDM-003, believed to be the 1608 *Nossa Senhora da Consolação* in the vicinities of Mozambique Island, Mozambique, both Filipe Castro and Alejandro Mirabal came to similar results for a reconstructed hull of a nau whereas the process of the remodeling of the *Consolação* was based on the one of the *Mártires*. Although both models are based on a three deck nau, the archaeological artefacts, namely the remains of the wood structure, do not permit a determined observation whether both were either three deck or four deck naus.

Both studies show different results of the ballast stones weight, the *Consolação* measured approximately a total of 250t, the theoretical calculations for the *Mártires* as to be of circa 175t minimum.

The wreck site IDM-003 showed evidence of iron cannons used on board of Portuguese naus while MOG-003, most likely to be the 1622 nau *São José*, showed evidence of a mixed outfitting by bronze and iron cannons which, however, do not confirm or refute a separation of cannons by metal and type of ship.

A combined observation of the research of the historical documentation and the reconstructed ships based on underwater archaeology by Filipe Castro and Alejandro Mirabal permit a new approach for understanding the Portuguese naus of the late 16th and early 17th century which were in a process of changes such as the experimental phase of using three and four deck naus as well as the augmentation of capacity in general, causing the loss of maneuverability.

V Monetary flows of the Portuguese outward bound armadas 1600-1625

At the turn of the 16th century, the Portuguese *Estado da Índia*, under the reign of the Habsburgs since 1580, saw the emergence of Dutch sails in the Indian Ocean. Challenging the Portuguese monopoly of the spice trade, several private companies of the Lower Countries merged into the Dutch United East India Company, the VOC, in 1602. During the first decade of the 17th century, the Portuguese trade with the Orient was faced with a decline of its revenues since the favorable position of being the only supplier of spices and other oriental goods for the European markets such as Amsterdam and London was lost. Also, the fact of a Portuguese *contribution* financing the Spanish forces against the Dutch rebellion took its share from the income of the cape route trade.

Additional factors such as the increase of enemies' attacks in the Atlantic and the Indian Ocean which resulted in an increasing number of losses of the Portuguese homeward and outward bound voyages weakened the Iberian financial situation²⁹⁴. Based on the revenues that resulted from the sale of the merchandise of the prior year's homeward bound voyage, the Portuguese directly invested in the outfitting of the next years' outward bound fleet. this system, based on regular income, stable market conditions such as demand, prices and supply as well as successful outward and homeward bound shipping, was fragile itself and vulnerable to new conditions. As extraordinary expenses such as the fortification of strategic coastal positions like the *São Sebastião* fortress at Mozambique Island, the important way-station of the *Carreira da Índia* turned into constant costs²⁹⁵, new forms of financing the Luso-Asiatic shipping were necessary in order to deal with the annual costs of shipbuilding and outfitting as well financial supply for the purchase of merchandise.

Until 1598, private consortiums such as the Ximenes d' Aragão either directly participated in the Portuguese Asiatic trade by outfitting the ships and providing money for the purchase of goods or were responsible for the selling and distribution of pepper

²⁹⁴ See: James C. Boyajian, op. cit., p. 86

²⁹⁵ See: Jorge M. Pedreira, Idem, *ibidem*.

(and other merchandise) of the royal monopoly, the *real fazenda*²⁹⁶, a custom known since the early days of the *Carreira da Índia*. As the negotiations for a renewal of the pepper consortium failed, new forms of financing the *Carreira* were needed and an allotment, the forced acquirement of pepper by the leading New Christian merchant families was introduced in 1600²⁹⁷. With it, the Portuguese crown guaranteed the selling of spices for a fixed price²⁹⁸. Initially thought as a temporary form of financing, the allotment continued during the following years until the decade of 1630²⁹⁹.

Throughout the period of the Twelve Years Truce in which no more than some incidents occurred, no planned enemy attacks on the Portuguese cape route shipping took place and it was supposed that revenues from the *Carreira*, due to a peaceful environment, would have increased. Eventually, factors such as fraud, especially during the administration of Vice-king D. Jerónimo d' Azevedo (1612-1617), hindered an improvement of the financial situation of the *Estado da Índia*³⁰⁰.

During the decades of 1610 and 1620, King D. Filipe II of Portugal granted several rights of commercial voyages to the convent and monastery *Nossa Senhora da Encarnação*, found by his wife Queen Margaret of Austria. Documented since 1614³⁰¹, revenues of several commercial voyages to China, India and Japan were dedicated to the maintenance of the said monastery to which, the king send 40,000 *cruzados em reales*³⁰² in 1618 and at least 10,000 *cruzados em reales* in 1622³⁰³.

The Spanish coins destined for the Portuguese Asiatic trade, the *reales do peso de a ocho* (the Spanish real or piece-of-eight), either originated from the Spanish overseas possessions in the New World, Mexico and Peru³⁰⁴ or were minted in Spain³⁰⁵; for this purpose, raw silver bars were send on board of the *Silver Armada* galleons. As the total amount of coins sent was declared in the Portuguese currency *cruzados* but consisted of Spanish *reales*, the total was usually declared as “*cruzados em dez*”.

²⁹⁶ See: James C. Boyajian, op. cit., pp. 86, f.

²⁹⁷ See: Idem, p. 88.

²⁹⁸ See: Idem, *ibidem*.

²⁹⁹ See: Idem, p. 199.

³⁰⁰ See: Idem, pp. 156, f.

³⁰¹ See: Raymundo António de Bulhão Pato (dir.), op. cit., vol.. III, p. 155, f.

³⁰² See: *Documentos Remettidos da Índia ou Livro das Monções*, Lisbon, Imprensa Nacional, 1935, pp. 155, f.

³⁰³ See: A. da Silva Rego (ed.), op. cit., vol.. IX, p. 148; Idem, vol.. X, p. 303.

³⁰⁴ See: Alejandro Mirabal, op. cit., pp. 24-36.

³⁰⁵ See: Idem, *ibidem*.

reales”³⁰⁶. During the historical period analyzed in this thesis, no singular coin of ten *reales* was in circulation and several coins of four or eight *reales* were compiled for the Kings purposes. Since 1612 smaller coins of one *real* and two *reales*, referred to in the historical documentation as “*reales singelos*”³⁰⁷, had to be separated from the royal money, the *cabedal*, due to their lesser acceptance in India³⁰⁸. A coin of eight reales contained an average of 26g of Silver. Concluded by the historical documentation and analysis of artefacts documented and recovered from the 1622 *São José* wreck, it is estimated that an average amount of 500 to 550 *cruzados* in *reales* was assorted and stored in a straw bag which then, joined with several other, most likely four bags of the same kind, were stored in cases amounting an estimated total of 2,000 *cruzados* in *reales* per each case³⁰⁹.

Generally, the monetary flows of the Portuguese outward bound armadas during the first quarter of the 17th century, an average amount of 66,970 *cruzados em dez reales* was annually sent to India³¹⁰.

³⁰⁶ See: AHU_CU_Índia, cx. 15, doc. 177 (1626).

³⁰⁷ See: Raymundo António de Bulhão Pato (dir.), op. cit., vol.. II, pp. 220, f.; Alejandro Mirabal, op. cit., p. 38.

³⁰⁸ See: Alejandro Mirabal, op. cit., p. 38.

³⁰⁹ See: Idem, *ibidem*.

³¹⁰ See: Table 1

Year	Amount (in cruzados)	Amount (in xerafins)	Observations
1598	40,000		34.000 arrived, 1 ship lost in Brazil
1607	40,000		Naus S. Francisco, N. S. da Consolação
1610	100,000		
1611	100,000	197,918	in 10 reales, 3 ships Gualdalupe, Piedade
			S. Phelipe
1612	75,000	148,437	N.S. do Monte do Carmo, N. S. da Nazaret
1613	40,000		
1614	90,000	179,111	N. S. da Luz, S. Phelipe, S. Boa Ventura
1615	172,500	341,402	N. S. da Boa Nova, N. S. dos Remedios,
			N. S. de Nazare e N. S. de Jesus, Gualdalupe lost
1616	40,000	79,166	N. S. do Vencimento
1617	201,000	397,812	S. António, N. S. do Cabo,
			N. S. da Penha da França
1618	120,000	237,500	S. Amaro, Capitania S. Carlos
1619	80,000	162,732	S. Teresa, Boa Nova
1620	80,000	161,772	N. S. da Guia, N.S. da Penha da França
1621	80,000	160,000	S. Amaro, N. S. do Rosário
1622	142,000	288,856	S. Teresa, S. Thome, S. Carlos, S. José (P. S.)
			Falta do cabedal 162.437 xerafins
1623	218,000	476,000	1623, 1624 together, 1623 S. Isabel, Conceição,
1624			1624 Chagas, Quietação, S. João
1625	80,000	162,000	S. Bartolomeu, S. Helena

Table 3: “Monetary flows of the Portuguese outward bound armadas 1600-1625”³¹¹

Portuguese accounts of transactions in India were documented in another currency, the *xerafin* that, according to statement of James C. Boyajian, was worth $\frac{3}{4}$ of a *cruzado*³¹², according to the statement of M. D. D. Newitt a *cruzado* was worth 400 *reis* and the *xerafin* 360 *reis*³¹³. Data obtained by the historical research in Portuguese archives show quite different values indicating an average equivalence of one *cruzado* as 1.97 to 2.03 *xerafins*³¹⁴.

³¹¹ See: James C. Boyajian, op. cit., pp. 88, 97; AHU_CU_Índia, cx. 15, doc. 177.

³¹² See: James C. Boyajian, op. cit., p. 326.

³¹³ See: M. D. D. Newitt, *A History of Mozambique*, Bloomington, Indiana University Press, 1995, p. 585.

³¹⁴ See: AHU_CU_Índia, cx 15, doc. 177.

V.1 The armadas of 1622 and 1623

due to the missing letter written by the treasury council of Goa shortly after the arrival of the Vice-king D. Francisco da Gama in the Portuguese archives, the following observation of the amount of money sent on the outward bound fleet is a rather educated guess based on available historical documentation rather than on facts derived from an official declaration but, nevertheless, it serves the purpose of analyzing the monetary flow of a particular armada.

Declared in the historical documentation, the *cabedal* sent from Lisbon to Goa on board of the 1622 Portuguese outward bound fleet and that actually arrived in India after the Anglo-Dutch attack in Mozambique, amounted to a total of 142,000 *cruzados* or 288,856 *xerafins*³¹⁵. The same document mentions the following ships: *Sam Thome*, *Sam Carlos*, *Sam Jose* (with a note “PS” after the ships name) and the *Capitania Samta Tereza*³¹⁶. The same amount in *cruzados*, declared as 284,000 *xerafins*³¹⁷ only mentions that the *cabedal* on board of the three ships of the Vice-king’s Company safely arrived in Goa with *only* 18,000 *cruzados* stored in nine cases, the case of the *Santo Joseph* being lost³¹⁸. As presented in chapter III.4, the undated eye witness report of an unknown individual stated the loss of some money belonging to the particulars and merchants as well as the salvage of 30,000 *cruzados* in 15 cases of the King’s money or the *cabedal*³¹⁹. As observed above, the Portuguese declaration by D. Maria Coutinho stated the loss of 680,000 *cruzados*³²⁰, the Dutch and English documentation and historiography as 68,553 *reales of eight*³²¹.

Taking in consideration that the values mentioned in the historical documentation are absolute values, the following calculation models enable the assumption of the amount of money aboard each ship of the 1622 outward bound fleet.

³¹⁵ See: Idem, fol. 5v.

³¹⁶ See: Idem, *ibidem*.

³¹⁷ See: A. da Silva Rego (ed.), op. cit., p. 282.

³¹⁸ See: Idem, *ibidem*.

³¹⁹ See: *Relação do que passamos na viagem depois que passamos a linha e encontramos os inimigos Ingleses, holandeses...*, op. cit., fol. 128v.

³²⁰ See: Note 207.

³²¹ See: Note 208.

The same amount, 142,000 *cruzados* divided by the three ships which had safely arrived in India results in an average amount of 47,333 *cruzados* per ship. Adding the declared 18,000 *cruzados* with the 30,000 *cruzados* of the *São José* results in a total of 48,000 *cruzados*, is similar to the prior result.

The amount of money of the three ships of the Vice-king's company is declared as being 142,000 *cruzados*, the loss of the *cabedal* of the *São José* as 18,000 or 30,000 *cruzados*, depending on the documentation. the salvage by the Dutch and English as an average of 68,000 *cruzados* which together amounted to a total of 228,000 or 240,000 *cruzados* of four ships results in an average of 57,000 or 60,000 *cruzados* per ship including the money of the particulars and of the convent and monastery *Nossa Senhora da Encarnação* in Madrid that, on board of the *Santa Teresa de Jesus*, was of a minimum amount of 10,0000 *cruzados*³²².

the amount of money of the three armadas of 1622, 1623 and 1624 arriving in India, a total of 529,252 *cruzados*³²³ permits another calculation. Included in the same document, the amount of money delivered to India in 1623 is stated as 104,000 *cruzados*³²⁴, the amount for the following year as 110,000 *cruzados*³²⁵ resulting in 315,252 *cruzados* left. Subtracting from this amount the 68,000 *cruzados* declared by the Dutch and English as well as the 18,000 *cruzados* or 30,000 *cruzados* by the Portuguese, results in a total of 229,252 *cruzados* or 217,252 *cruzados*.

A comparison of the calculations permits an estimated amount of money sent to India in 1622 as a total of, at least 220,000 *cruzados*, an average of 55,000 *cruzados* per ship. As stated above, this calculation is based on absolute values with the assumption of their correctness indicated in the historical documentation.

³²² See: Note 234.

³²³ See: AHU_CU_Índia, cx. 13, doc. 124, fol. 1.

³²⁴ See: Idem, fol. 1v.

³²⁵ See: Idem, *ibidem*.

Indication	Amount (in cruzados)	Observations
Cabedal of the 3 ships of the		
Company of D. Francisco da Gama	142,000	
Loss of the São José	18,000	in 9 cases
Loss of the São José	30,000	in 15 cases
Money of the convent and monastery		
Nossa Senhora da Encarnação, Madrid	10,000	at least, amount used to purchase the ship Santa Cruz
Salvage by the Dutch and English	68,553	In reales, Dutch and English
		Sources
Salvage by the Dutch and English	65,000	Portuguese sources
Coins recovered by Arqueonautas	23,528	Recovered until today
Worldwide, Arqueologia Subaquática S.A.		Excavation still in progress
Estimated amount of the 1622 fleet	220,000	
Estimated amount per ship	47,333	
Estimated amount per ship	55,000	
Cabedal of the 1623 fleet	104,000	Amount which reached India
Cabedal of the 1624 fleet	110,000	Amount which reached India
Cabedal of the 1623 and 1624 fleet	218,000	Amount which reached India

Table 4: “Figures of the 1622 Portuguese outward bound fleet”

The situation of the 1623 money sent on board of the Portuguese outward bound fleet symbolizes a particular case regarding the Portuguese trade in the East under the Spanish rule. As stated above, the commerce in Asia demanded great quantities of silver coins which derived from the *New World*. For the purpose of outfitting the 1623 Portuguese fleet, the Lisbon administration was waiting for the delivery of the *Silver fleet* from the previous years, delayed due to a storm in the Caribbean. Eventually, at least three ships with silver coins on board, the *Nuestra Señora de Atocha*, the *Santa Margarita* and another documented ship were lost. Therefore, D. Filipe III had to accept a loan given by the *Santa Casa da Misericórdia de Lisboa* to send a total of 200,000 *cruzados* in Portuguese money instead of the Spanish *reales*³²⁶. Besides from this money on board of the three naus of the fleet, the King also sent 18,000 *cruzados*, 6,000 *cruzados* in each galleon and an additional amount of 16,000 *cruzados* which came

³²⁶ See: A. da Silva Rego (ed.), op. cit., vol.. X, p. 268, f.

from Castile³²⁷ in a total of 34,000 *cruzados*. The historical documentation states the arrival of 104,000 *cruzados* in India for the year 1623³²⁸ or 108,000 *cruzados* out of the 218,000 *cruzados* of the combined account of the 1623 and 1624 fleet, of which the 1624 fleet delivered a total of 110,000 *cruzados*³²⁹.

Indication	Amount (in cruzados)	Observations
Cabedal send on board of the 3 Naus		
Additional money send on board of the	200,000	
3 Galleons	18,000	6,000 each
Additional money send	16,000	from Castile
Total amount	234,000	
Cabedal declared as delivered in India	104,000	Declaration for the year 1623
Cabedal declared as delivered in India	108,000	Account of the 1623 and 1624 fleet, 1624 fleet delivered a total of 110,000

Table 5: “Figures of the 1623 Portuguese outward bound fleet”

V.2 Observations

Observing the Indo-Portuguese and, in a general perspective, the Indo-European trade during the historical time period of the first quarter of the 17th century, European-Asiatic commerce was based on the purchase of spices and oriental goods paid in silver coins. As Portugal was under the rule of the Spanish kings since 1580, the house of Habsburg, the demanded supplies of silver as commodity for the acquirement of the merchandise were coins mainly originating from the New World, especially the four and eight reales or the *real de peso de a ocho*, equivalent to 0.9 Portuguese *cruzados*, in

³²⁷ See: Idem, *ibidem*.

³²⁸ See: AHU_CU_Índia, cx. 13, doc. 124, fol. 1v.

³²⁹ See: Idem, *ibidem*.

its turn, equivalent to 1.97 to 2.03 *xerafins*, the account currency used by the officials of the Portuguese *Estado da Índia*.

The outfitting of the Portuguese *Carreira da Índia* fleet depended on the delivery of the prior year's delivery of the Silver fleets from Mexico, Peru and the Caribbean, i.e., a fragile supply chain with a worldwide dimension. With the Portuguese trade in Asia already weakened by the emergence of the Anglo-Dutch concurrence causing lower revenues from the spice trade, the Lisbon administration was faced with an additional struggle to maintain the monetary flows and, as the case of the delay and loss of the 1622 Silver armada, had to arrange other solutions to finance the outward bound fleets.

VI Final Remarks

As it is shown during the course of the thesis, the historical phenomenon “Shipwrecks of the *Carreira da Índia*” which occurred in Mozambican waters during the chosen time span of 1595 and 1623 may and, I think, should be viewed through various angles and points, demonstrating a more complete picture of the early 17th century.

Resuming the political situation in Europe, Portugal was under the dominion of the Habsburg Empire since 1580, a historical time period also known as the Union of the Two Iberian crowns (until 1640). Although there had been a separation of the local Iberian and overseas administration, Spanish political decisions also affected the neighboring country.

Although it is known that the Dutch Asiatic shipping had its origins in the first voyage to the Spice Islands in 1595, based on the diary written by Jan Huygen van Linschoten, and the formation of several private companies unified in 1602 into the Dutch United East India Company (VOC), the question remains unanswered: Why did the Dutch, after a period of almost 30 years of struggle against the Spanish domination in the Low Countries, decided to undertake the first Asiatic voyage and not earlier? There are several factors which should be taken into consideration: Long distance travels to the origins of spices and other precious oriental goods were expensive and the outcome depended on the successful homeward bound voyage. Until the last decade of the 16th century, the Iberian markets and ports, in our case, especially Lisbon, were opened to the merchants of Northern Europe. this situation changed by the decree that forbade the participation of foreigners on board of Asia bound ships as well as foreign shipping in Iberian waters, i.e., the direct access to the spice markets such as Lisbon, and the areas under the domain of the Portuguese and Spanish Empires, the origins of pepper, nutmeg, mace and other desired oriental goods. Also, the same embargo or neglected access symbolized a shortage of silver and coins such as the Spanish *reales* in particular.

The first decade of the 17th century, characterized by the three attempts to conquer Mozambique Island, the important way-station of the Portuguese cape route,

(1604, 1607 and 1608) and the losses of several Portuguese ships in Mozambican waters such as the 1608 *Nossa Senhora da Consolação* and the *Bom Jesus* caused by the Luso-Dutch naval conflicts, affected the Portuguese *Carreira da Índia* shipping in a phase of an already existing decline. A reduction of the volume of annual shipping, less revenues from the Asiatic trade due to lower prices at the European markets was accompanied by a continuous growth of Dutch-Asiatic shipping and fortification of economic relationships with local Asiatic authorities such as the King of Johor.

After a span of 12 years of Truce (109-1621), the Luso-Dutch relationships appeased but the emergence of the English trade in the Persian Gulf region and South East Asian waters produced a new but yet just another economic and political concurrent for the Portuguese Estado da Índia.

As the two North European countries agreed on the creation of two combined Anglo-Dutch *fleets of defense* at the end of the term of the Twelve Years Truce, the Portuguese negotiations for an extension of the Truce were unanswered and naval conflicts recurred. 1622 marked the renewal of a planned attack on the Portuguese outward bound shipping, resulting in the losses of the *Santa Teresa de Jesus*, the *São Carlos* and the *São José* off Mozambique. A planned repetition of a joint attack in the Western Indian Ocean was abandoned and shortly after the Anglo-Dutch alliance terminated due to the Amboina massacre in 1623.

Whether the attacks on Portuguese Asiatic shipping in the Western Indian Ocean and Mozambican waters especially during the period of 1595 and 1623 had a significant direct or indirect impact on the increased losses, has been questioned and interpreted by several international authors in the past and present commonly examining the object of the study, the attacks, by decades. As demonstrated in Table 1, I obtained the method to show the losses of Portuguese outward bound and homeward bound fleets during the years of the attacks showing the figures of the total loss, as result of navigation, storms or accidents, as well as directly or indirectly related to the attacks *per se* vizualizing the contemporary impact and effect. As a consequence of a successful outcome of naval combats and seizures of ships, the attacks represent a total percentage of the main factor for the losses occurred in 1607 and 1608 as 50 percent, in 1616 and 1622 as 100 percent. As the shipwrecks have taken place due to other factors during the critical years

of Portuguese Asiatic shipping, the attacks do not account for the losses of ships in the years 1604 and 1623 as well as the separated fleets of 1607, 1608 and 1622.

Still, the direct or indirect implications of shipwrecks such as the loss of the means of transport, cargo and human resources which had to be replaced as well as shortage of money supply for the purchase of oriental goods or cargo at the Lisbon market have to be taken in consideration during the historical time period of the early 17th century.

The passage of the Mozambique Channel has been a hazard for the *Carreira da Índia* since its early days as sandbanks and shoals, especially in the vicinities of the Primeiras Islands group and Mozambique Island sometimes reach up to several nautical miles into the channel. Naus, the Portuguese armed merchantmen of the *Carreira da Índia* suffered a phase of volume augmentation and experiments of four deck ships instead of the commonly used three deck ships. In times of decline, of economical and political changes, passing from the only supplier of oriental goods at the European market to the concurrence from the Dutch and English, the transformation of the Portuguese Indiamen had also an impact on the losses.

Lastly, the analysis of the monetary flows of the Portuguese outward bound shipping permits an examination of the quantity and origins of coins, the *cruzados em reales*, mainly originating from the New World, were transported on board of Spanish galleons to Seville (Spain), transferred to the Lisbon *Casa da Índia* and finally sent on Portuguese ships towards India demonstrating the worldwide dimension of the Portuguese Asiatic trade under the Habsburg in the early 17th century.

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